



The Shell or Telescope Crown.*

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CHAPTER VII.

(Application to Separated Molar Roots: Procedure, Bands, Cusps. Application to Individual Roots. Cantilever Bridges. Application of Amalgam: With Band. Without Band. Application to the Anterior Teeth: Indications, Procedure; Adaptation to the Mouth. Adaptation to Models. Carving and Swaging. Die-plate Methods; Lowry and Millett Systems; Hollingsworth and Baird Systems. Seamless Method: Reproductions. Dowels. Ready-made Forms. Removing and Repairing: Crown Slitting Forceps. Preserving Continuity of Bands. Repairing.)

Application to Separated Molar Roots.

The presentation of cases where molar roots have become separated at the bifurcation as the result of extensive disintegration of the crown, and with each individual root remaining *firm* in its attachment, is not an infrequent or unusual occurrence.

In such instances the application of a crown will not only often restore the roots to the former usefulness and supply the serviceability of the original tooth for many years, but will also frequently preclude the *impaired occlusion* of the adjacent teeth which their natural gravitation or tipping, as the result of the loss of such roots, would occasion.

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This latter phase places a degree of importance upon the permanent retention of these roots, which, particularly in early life, and especially on *first* molars, makes such a procedure of inestimable value, and causes it to be almost universally indicated wherever such a condition is found in otherwise unbroken or well-filled arches, with the roots remaining reasonably firm.

Procedure.

In the treatment of these cases the individual roots should be carefully prepared by observing the therapeutic and mechanical requirements, and each then built up *separately* with amalgam (anchored with a post, or by other mechanical retention) until they afford favorable shape for the permanent attachment of a band. (Fig. 103.)

Bands.

Separate bands should be fitted to each, their *occlusal* ends trimmed to allow for the cusp, and contoured to approximate each other, and restore contact with adjacent teeth.

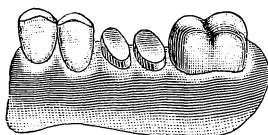


Fig. 103.



Fig. 104.

The usual bite in wax and impression in plaster should be secured, and the case finally mounted upon the articulator. After separating, and detaching the bands from the model in such manner as to preserve their outline and admit of accurate replacement, they should be readjusted to the model and united securely together with hard wax; then they may be removed and the *cervical* one-half imbedded in investment material. Their relation may now be permanently sustained by filling in between them with 22 karat solder, which union, involving the occlusal ends only, will leave a free, clean interproximal space. (Fig. 104.)

Cusps.

The united bands may now be replaced upon the model and the cusps formed in the usual manner, as though for the single band of an ordinary crown. In attaching them, however, care must be exercised to prevent re-fusing the solder with which the bands were previously united, and thus changing or destroying the relation between them. The use of a lower grade solder will ordinarily preclude this, but to further facilitate it the cusps should be *filled* with solder after obtaining their proper adaptation, and

previous to attaching them to the bands. Very little danger will then exist, and *any* may be entirely overcome by the use of a solution of whiting and alcohol.

Application to Individual Roots.

Where but a single root remains or possesses sufficient strength, and particularly in the lower jaw, it may often be retained and made serviceable for a number of years by the application of a crown. Also, in instances where such a root may be unusually strong, and the space

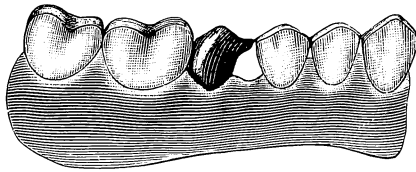


Fig. 105.

formerly occupied by the normal tooth has become lessened or partially closed, as a result of the loss of the other root and the gravitation of the adjacent teeth, it is often practical to extend the occlusal portion of the crown until it rests against the adjacent tooth, and thus affords a continuous masticating surface. (Fig. 105.) The contact point between such a crown and the natural tooth, however, should be *only* sufficient to

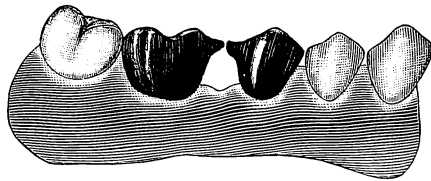


Fig. 106.

prevent tipping of the root from the stress of mastication, and for prophylactic reasons should rest close to the occlusal surface and be smooth and well rounded.

Cantilever Bridges.

A *small* intervening space between two artificial crowns may be bridged over until an unbroken masticating surface presents, by applying these same principles, as was originally suggested by Dr. J. N. Farrar. (Fig. 106.) Such a procedure would be most practical, however, in cases

where a *very small* space existed, as one sufficiently large to accommodate a *dummy* could usually be best filled by constructing an assembled bridge.

Application of Amalgam.

Amalgam is sometimes employed in the restoration of badly broken down molar roots by crowning, and, while good results in the line of expeditious operations combined with a moderate degree of preservation and permanency are probably possible, any method possessing only the advantages of *time* and cost of production, and requiring less skill and effort than a manifestly better and more *artistic* one, should very naturally occupy the limited sphere of application and usefulness accorded to this.

In conditions and environments, however, which seem to indicate the application of such methods, it is possible to obtain fairly good results in the restoration of the crowns of second and third molars, where the occlusion is very *close*, by either of the following procedures:

Where a permanent band may seem indicated as
With Band. a means of supporting the remaining walls of the root, and aiding in the retention of the amalgam, it should be made of gold, carefully fitted and adapted, and then polished and cemented to place.

Provisions should then be made for securely retaining the amalgam. This may be accomplished either by means of a post, cemented into one of the canals, or by cutting a mechanically retaining cavity if sufficient tooth structure remains.

Very plastic amalgam should then be packed thoroughly to place, and built up to the desired cusp formation, until a favorable occlusion is obtained.

After crystallization, and preferably at a subsequent sitting, the amalgam cusps should be well finished and polished; and, while the gold band will have assumed the same color by the superficial absorption of mercury, its original color may be brought back by *polishing*, if desired.

If a permanent band is not desired, or seemingly
Without Band. unnecessary, the entire crown may be made with the amalgam. In this procedure a *temporary* band of thin German silver, 32 to 34 gauge, should be made and adapted to the root, as indicated. This is used only as a matrix for aid in adapting and contouring the amalgam, and may be easily removed from the latter, after its crystallization, by cutting, after which the amalgam crown may be finished and polished. The easy removal of the band may be further facilitated by coating its inner surface with vaseline or oil before packing the amalgam, which will prevent superficial amalgamation with it.

Where extensive destruction may preclude sufficiently adequate retention for the amalgam, it may be *first* tightly packed to the surface of the tooth and matrix, and around the projecting end of a dowel temporarily adjusted to the canal if the use of the same seems indicated, *without* any provisions for its retention. After crystallization both may be removed, the band separated, and the crown then finished and polished, and finally mounted with cement, after serrating or roughening the surfaces of crown and root. Such operations, however, are of doubtful permanency as compared with those wherein a permanent band is employed.

Application to the Anterior Teeth.

While it is difficult to conceive of a practice more flagrantly inartistic than the application of gold crowns to anterior teeth or roots, as has been previously observed, they are, nevertheless, occasionally employed.

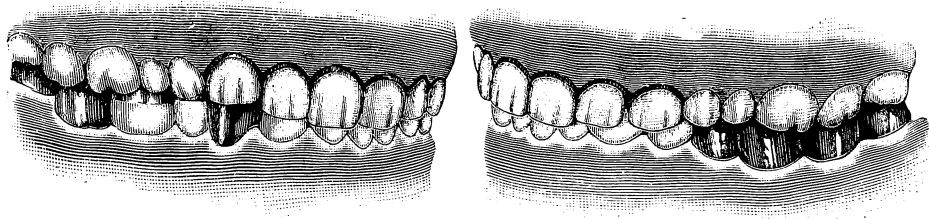


Fig. 107.

In view of the opportunities for more artistic endeavors, and the increasing appreciation of and demand for the same, this class of gold crown is now the rare and exceptional expedient rather than the common practice, and would doubtless soon become entirely obsolete were it not for a *limited* class of cases in which the requirements and environments seem to justify such a procedure.

Their application in any event, including even these exceptional conditions, should be made with an honesty of purpose, and a sense of professional duty, paramount to a mere catering to the perverted, unrefined vanity of the vainglorious.

The class of cases in which their application is practicable and warrantable is confined to the mouths of men past middle age, where they are partially or entirely hidden by the beard. In such instances the use of gold crowns may be indicated in *two* general classes of cases:

Indications.

First, where, from a more or less powerful masticating action, and by years of constant and continued attrition, the remaining teeth have become

so worn down as to require restoration with an absolutely indestructible material. *Second*, in crowning the *cuspid* teeth, when they are to serve as abutments for bridgework, and where it is desirable, and perhaps necessary from a mechanical standpoint, to allow as much as possible of the natural crown to remain in order to secure the additional strength thus imparted to the attachment between crown and root; and where the practical invisibility of the work may not require any special effort toward securing the more artistic effects afforded by other means.

The first class of cases are not uncommon or infrequent, and usually present a more or less perplexing problem. If an adequate number of the posterior teeth remain, and occlude with teeth in the opposing jaw, a more artistic result may often be obtained by crowning the posterior teeth in such a manner as to *open the bite* sufficiently to accommodate crowns having porcelain facings, on the anterior teeth, with reasonable assurances of permanency and usefulness. But in the event of the loss or

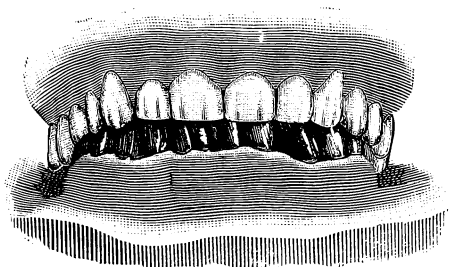


Fig. 108.

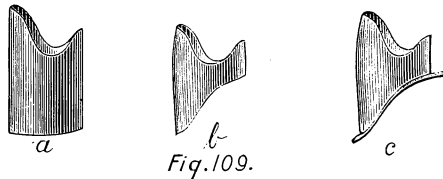
absence of properly occluding posterior teeth, all, or the greater portion, of the work of mastication may be thrown upon the remaining anterior teeth, and thus preclude the use of porcelain and occasion the necessity for gold, unless the posterior teeth be first supplied by artificial dentures.

Fig. 107 illustrates a case where the bite was opened by placing crowns upon the posterior teeth, with cusps sufficiently thick to withstand the work of mastication, and which thus admitted the application of porcelain-faced crowns to the anterior teeth. Fig. 108 illustrates a case where the absence of the posterior teeth indicated the use of gold on the remaining anterior teeth, and where the crowns were further fortified against the stress of mastication by tipping each with 26 gauge clasp-metal. The use of the clasp-metal is especially indicated where both upper and lower teeth are crowned and the crowns occluding with one another.

Procedure. In the application of these crowns, several methods are employed. The requirements of root preparation, as have been outlined in general, include securing the greatest diameter at the cervix by reducing the coronal proportions, and further sacrificing the approximal, labial, lingual and incisal surfaces until the remaining structure will admit of properly shaping and contouring the crown, when the measurement should be taken as heretofore indicated. A band of 28 gauge, 22 karat gold should then be cut the exact length of the straightened measurement wire, and somewhat *wider* than the required length of the crown.

Adaptation to the Mouth. As the correct adaptation can be most accurately obtained by fitting directly upon the root, and but little time is thus consumed, the use of models is unnecessary.

The band should be soldered, trimmed to meet the gum line evenly (Fig. 109, a.), and then forced to place upon the root. When the cervical adaptation has been completed, the *lingual* portion of the band should be cut away, following the original curvature and outline of the



tooth. (Fig. 109, b.) The labial surface may now be contoured with the pliers until it assumes proper shape and alignment, and restores contact with adjacent teeth, in which the artistic results possible are, of course, in proportion to the degree of skill displayed.

The incisal end should now be trimmed to the proper length and shape, with an allowance for the thickness of the lingual plate to be subsequently attached, and of the clasp-metal also, should its use be desirable or necessary.

A piece of gold, somewhat larger than necessary, 28 to 30 gauge, 22 karat, should now be adapted to the lingual portion of the band, held in contact with pliers or wire, and soldered from the inside. (Fig. 109, c.)

Adequate re-enforcement of the incisal end should be obtained by filling in sufficiently with solder, or by attaching a piece of clasp-metal, previously cut to the exact size and shape, along the edge.

The surplus should be cut away, and the crown subjected to the acid bath; then finished and polished.

**Adaptation
to Models.**

When it may become necessary, or seem desirable, to construct the crown upon models, thus confining the work to the laboratory, a *narrow* primary band of copper or German silver, 32 gauge, should be fitted to the root, and an impression, including the adjacent teeth, then taken in plaster.

When this has been secured, the band should be adjusted accurately to place, and the model obtained with fusible alloy, which is preferable to plaster, being more indestructible.

With a sharp chisel or bur the *outside* surface of the band on the model should be first freely exposed, when it may be cut in two and detached. This will leave the adjacent teeth and the correct cervical outline of the root definitely exposed in the model, and the crown can then be constructed upon it in the manner indicated, with reasonable accuracy.

Those who may experience some difficulty in shaping and contouring the labial surface with pliers in an artistic manner, may be able to obtain better results by carving and swaging both labial and lingual surfaces, though this method seems unnecessarily circuitous.

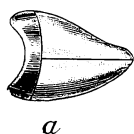


Fig. 110.

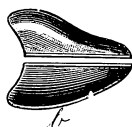


Fig. 111.

To accomplish this the primary band should be fitted, the impression taken, and a model secured in *plaster*. The band should be carefully detached from the model and the latter varnished. With the band again adjusted to position, the intended crown may be formed with plaster, which, after hardening, may be carved to the desired form. By the use of mouldine *separate dies* may now be secured of the *labial and lingual* surfaces, with the line of junction at the center of the approximal and incisal surfaces. (Fig. 110, a.)

Each surface should be swaged separately; the surplus trimmed away; the edges passed over a flat smooth file until they approximate evenly (Fig. 110, b.), and the two finally soldered, with sufficient incisal re-enforcement.

In this procedure the degree of accuracy obtained in the finished crown will depend much upon first drawing or designating a definite line between the two lateral halves of the plaster crown; then securing an imprint of each surface in the mouldine, having a well defined edge evenly

approximating this line, and finally trimming away the surplus gold, after swaging, with care and precision before uniting the two with solder.

The accuracy and indestructibility of the metal model, however, supplemented by the definite reproduction of the diameter and cervical outline of the root, which is afforded by the primary band, aids materially in securing the desired result.

The various die-plate systems possessing a selection of dies of the labial and lingual surfaces may often be employed to good advantage, with perhaps increased artistic effect, and a reasonable degree of accuracy, though they give a more typical reproduction of tooth-form than is usually necessary or required, excepting possibly for the cuspid teeth, as considered in the *second* class of indications.

The dies for this purpose contained in the Lowry and Millett Systems include only the *labial* surfaces, and may be used in accordance with their application as formerly outlined. In their use the measurement is taken and a band cut the proper length and width. The die is selected which approximates the individual requirements of the case, and the immediate center of the band is then conformed by swaging; after which it is trimmed, as indicated in Fig. 111, made in circular form and soldered. It is now fitted and adapted to the root, trimmed to assume the proper lingual curvature, and to admit of the attachment of the lingual plate, as previously shown in Fig. 109.

The Hollingsworth and Baird Systems include separate dies of *both the labial and lingual* surfaces mounted on a single base, and may be used in similar manner, in accordance with their application, as previously outlined.

When the die which most closely approaches the requirements for side, size and form has been selected, the gold should be swaged, and both sides of the crown then trimmed until properly approximated. They should then be wired together, fluxed, and soldered from the inside. (Fig. 112.) While it may now be possible to so trim the cervical end as to secure a fairly good adaptation to the root, a more accurate result may be obtained by adapting a narrow band of gold to the root and then fitting the crown *over* it, and subsequently attaching them with solder, when the incisal end may be adequately re-enforced and the crown finished and polished.

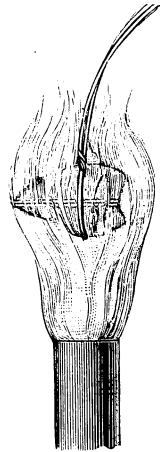


Fig. 112.

The application of the seamless method to the restoration of anterior roots is *identical* in detail to the procedure previously indicated in the construction of bicuspid and molar crowns. As the lingual outline of the adjacent teeth, however, will often serve as a guide, the taking of a "bite" becomes necessary only when the opposing teeth may be irregular, or where an incisal or "end to end" occlusion is required.

The primary band should be made and fitted in the manner outlined, and the impression secured in plaster. When the model has been obtained, the crown should be formed and carved, and the dies made in accordance with, and the swaging accomplished by, the process selected.

In applying this method to the construction of cuspid crowns where the entire natural crown remains, accurate *reproductions* of the tooth may be quite easily made. To accomplish this, the natural crown must first be trimmed sufficiently on the approximal sides to admit of an accurate adjustment of a band to the cervix, and, if necessary, upon the incisal, labial and lingual surfaces, to admit of securing the proper length, alignment and occlusion. A *narrow* primary band should then be fitted to the neck of the tooth, and the impression and subsequently the model secured in plaster. The plaster tooth should now be cut from the model in the manner indicated in Fig. 91, and the dies or swaging model secured as the selection of processes may require. When the swaging has been completed, the crown will be a close reproduction of the tooth and will fit it accurately. Sufficient incisal re-enforcement to prevent wearing through, however, must always be made, even at the expense of grinding the natural crown, if necessary.

This procedure is sometimes employed without using the primary band, but is, of course, *less* accurate, as the band indicates the proper relation to the root under and within the free margin of the gum, which otherwise can only be *approximated* by trimming the model at this point.

In those cases where the natural crowns are so badly worn or broken down as to afford inadequate attachment for the crown, the use of a dowel may become necessary as a means of supplementing the telescope attachment, and thus offering increased integrity. Their application may be made by first fitting them to the canal, and then allowing a projecting end to extend into the crown as far as its incisal surface will admit. After thus ascertaining the proper length, the dowel should be previously cemented to place in the root, and the crown subsequently attached.

Ready-Made Forms.

As a woful acknowledgment and conclusive evidence of the lack of skill possessed by some, and of the ever-ready willingness of the supply-houses and commercial dentists to cater to and supply the *demand*, a large variety of ready-made seamless crowns, in gold and aluminum, are procurable *ad libitum*.

They are made of typical form, in a gradation of sizes, of 22 karat, 30 gauge gold, and about 26 or 28 gauge aluminum, and in their use a measurement of the root is taken and a crown selected which approaches the same diameter. The cervix is then trimmed until a closure of the occluding teeth, with it in position, is possible, when it is fitted to the root with pliers, and, if of gold, re-enforced with solder and mounted.

The most accurate method of fitting a ready-made gold crown to a root is to cut a slit in each approximal surface, lap the edges, place the crown on the natural root and contract its cervical circumference by encircling the crown with annealed German-silver or copper wire and twisting the wire till the band is in good contact with the root. Adaptation is further perfected by burnishing, after which the slits are united with solder.

That such crowns may be correctly adapted to all the requirements of all environments is doubtless a presumption which no conscientious skilful operator would claim, because, while their individual formation is fairly typical of the natural tooth, it is difficult to conceive of securing a ready-made form which can be adapted to the requirements of cervical adaptation, approximal restoration, occlusion and alignment, all combined.

Indeed, these requirements are often difficult to obtain in a crown which is made for the individual case, and at the expense of every degree of energy, skill and handicraft possessed by, and at the command of, the operator.

The progress of dentistry, and the artistic possibilities pertaining to it, have only been achieved by the development of a superior skill which cannot be acquired by the practice of such indifferent methods.

Removing and Repairing.

As a result of pathological disturbances arising beneath them, or for the purpose of substitution or replacement, it not infrequently becomes necessary to remove a gold crown from its attachment to the root.

In the presence of conditions demanding therapeutic treatment, it is sometimes possible to cut through the occlusal surface of the crown on a line with the pulp chamber, with a sharp, spear-point drill or round bur, and then enlarge the opening until adequate access to the canals is secured. The necessary treatment may then be made through this opening,

upon the completion of which the pulp chamber and crown may be filled with cement, and a gold filling, anchored in the cement, subsequently inserted until the opening is imperviously closed.

While such a procedure may be productive of successful results in some instances, particularly in bicuspid or single-rooted teeth, it should not be regarded as a *safe* one in most cases, because the presence of the crown only adds to the difficulties to be encountered in an operation which is usually trying enough under the most favorable circumstances, and with every advantage of access and light.

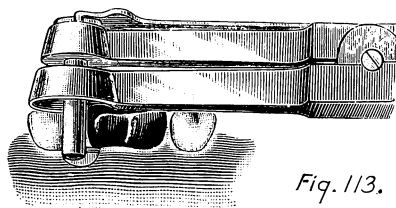


Fig. 113.

For this reason the removal of the crown is almost invariably indicated as a means of affording greater convenience and increased opportunities for success, and may be easily accomplished in two ways.

**Crown Slitting
Forceps.**

Where it is not necessary to preserve the continuity of the bands for subsequent replacement of the crown, and in emergency cases where its immediate removal is indicated or demanded as a means of affording relief, the crown slitting forceps may be used to good advantage. Those designed by the S. S. White and the Consolidated Dental Manufacturing Companies, the application of which latter is shown in

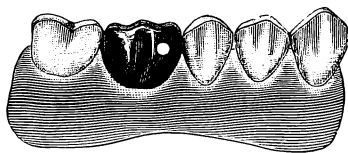


Fig. 114.

Fig. 113, are especially useful in securing the easy and expeditious detachment of the crown from the root.

In their use the flat beak should rest firmly upon the crown, and the sharpened one caught just under the edge of the band, when a slight compression of the handles will quickly separate it. The band may then be pried away from the root with a smooth flat burnisher until a pointed instrument can be slipped in between cusp and root and the crown lifted off, which may also be often done with the forceps alone.

**Preserving
Continuity of Band.**

When the same crown is to be replaced, it may be desirable to remove it without destroying the continuity and formation of the band, thus distorting its adaptation. This may be easily accomplished by drilling through it with a round bur at a *convenient* point, as close to the occlusal surface as the probable thickness of the cusp will admit (Fig. 114), and then burring out as much of the cement between cusp and root as possible by a lateral movement of the bur. A stiff, blunt-pointed instrument, similar to an old hand-plugger, should now be inserted into the opening, until its end rests about on the center of the root, thus securing a leverage by the establishment of a fulcrum, when the crown may be lifted off with but little effort.

Repairing.

While a crown removed with the slitting forceps may be easily repaired, as no material is destroyed, it is doubtful if the edges so cut can be again brought into proper relation and contact without requiring a readaptation to the root in case of replacement. Aside from this, the two procedures may be interchangeable and can be used as convenience and requirements may seem to indicate.

In either event, when repair is necessary, all remaining cement should be first removed with a bur, and the crown then thoroughly cleaned in acid, when the perforations may be filled with foil gold, and, together with other openings, then finally closed with 18 karat solder.



SOCIETY PAPERS

The Availability and Construction of Porcelain Fillings.

BY RODRIGUES OTTOLENGUI, M.D.S., NEW YORK.

*Read before the Second District Dental Society, in Brooklyn, Dec. 9, 1901, and
before the Boston and Tufts Dental Alumni Association, in
Boston, Dec. 11, 1901.**

Whilst it is true that porcelain inlays have been advocated for a very long term of years, it has only been since the advent of the material perfected by Dr. N. S. Jenkins, that a new and seemingly abiding interest in this mode of practice has come into existence. A curious fact to be recorded in connection with porcelain is that there seems to be greater faith in the new departure in Europe than in America. This must be studied for a moment.

America and its people are primarily practical, while Continentals have a higher degree of interest in the artistic. The refinement of Europe is more esthetic. Consequently the display of gold in teeth, as has been so common in the mouths of Americans, has never been countenanced in Europe. The need of showing half a front tooth built of gold is there considered almost as great a disaster as an artificial restoration of any other part of the body. If possible they prefer to have the loss remedied in such a way as to avoid suspicion. Oxy-phosphate fillings, consequently, have held sway, and gold has been used only where it would be out of sight. In these conditions frequent visits to the dentist for the replacement of the constantly wasting plastic was a direful necessity.

*This paper was specially prepared at the invitation of the Boston and Tufts Dental Alumni Association, but as the essayist for the December meeting of the Second District Society disappointed, permission was courteously extended by the Boston Society allowing the author to read the paper in Brooklyn. Thus we are able to present the paper, with discussion by members of two societies.—Ed.

With a clientele among the most cultured and well born families of Europe, working for patients who demanded invisible restoration of their decaying dentures, but with the American pride in the durability of his dental operations, we easily discover the impulse which urged Dr. Jenkins towards the perfection of a system which would be artistically more beautiful, and practically more lasting than the oxy-phosphate fillings so much used. And with such a material and such a system as that offered by Dr. Jenkins, we cannot be surprised at the vogue which his porcelain has attained in Europe.

American dentists and American patients have a different attitude towards the porcelain filling. Both admit that it is beautiful. But the patient, accustomed to the gold filling, which, properly made, is looked upon as a final operation, when the idea of porcelain is suggested, almost invariably asks, "Will it last?" And with the exception of a very few men, who seem to have overstepped the bounds of discretion in adopting this new method, the question proves embarrassing to the dentist.

In all that I have seen written, or heard in discussion, the subject of porcelain has been treated from the European standpoint. We have been told: "Our patients must be educated up to a more artistic standpoint;" "The display of gold in the front of the mouth must cease;" "It is better to be temporarily beautiful than to be permanently hideous." These be high sounding phrases, but, gentlemen, whatever your enthusiasm may be at the meeting where you hear the new preachment, you will learn to your sorrow that these arguments are but sophistry when you rashly apply them in practice. Very few Americans as yet ask us for porcelain fillings. Such as are made are inserted upon the suggestion and by the advice of the practitioner, and in spite of the query, "Will it last?" You must realize then that the responsibility is with yourself, that porcelain requires more time than gold to properly make and insert, and that in case of failure the lost filling must be replaced without fee.

I come before you tonight, therefore, to discuss the porcelain filling from the American, or practical standpoint. In spite of the artistic influences of Europe, I cannot abandon the theory that the dentist's *first* duty is to *save* the tooth, and that it is but a *secondary* demand that it shall be done in an *artistic* manner. The mouth is the portal through which enters health or disease. Proper mastication will do much to maintain the healthful equilibrium and the outward beauty of the whole physical form, and this can only be accomplished with teeth so well, so substantially filled that the patient may forget or ignore the fact that carious processes had removed those parts which have been replaced. A set of teeth restored, however beautifully, with a class of fillings that would compel the patient to masticate gently, for fear of displacement, would not long

maintain the physical charms of the body, however they might adorn the face.

It may seem from the above that it is my purpose to discountenance the use of porcelain, whereas exactly the reverse is my intent. Within even my limited experience I have seen many useful methods relegated to the dust heap of oblivion, merely because, without due appreciation, American dentists have made a mad rush for the new mode, overstepping the limitations of prudence, and when face to face with disastrous failures, the rebound of sentiment has ever voiced a cry of condemnation of the method, whereas a proper analysis would show that the fault was with the practitioner rather than in the practice.

I believe that the radical, impetuous use of porcelain, will within five years leave the method hidden away on the top shelf of abandoned practices, alongside of cataphoresis and copper amalgam. On the other hand, I firmly predict that a conservative application of porcelain fillings will show an increasing use of the mode, giving it a permanent place, second only to gold; for, despite my admiration for porcelain, I will not permit myself to forget that the corner stone and foundation of successful American Dentistry is the permanent contour gold filling.

**Advantages
of Porcelain
in Saving Teeth.**

Viewing porcelain, therefore, from the American standpoint, where, when, and how shall we use it? Perhaps its chief attractiveness will always be its resemblance to tooth substance, but I would call your attention to other important virtues, two in particular: First, it is a poor conductor of heat; second, it is made out of the mouth and inserted complete. Either of these, and especially both combined, will in many instances elect porcelain to a precedence over all other materials.

Let me speak of it first from the aspect of its poor conductivity. While modern practice preaches that the dental pulp is often better out of than left in a tooth, this very dogma has arisen from the fact that a metallic filling in close proximity to the dental pulp endangers the vitality of that organ. It is because of the constant death of pulps under large gold or amalgam fillings, with consequent abscesses, that we have come to see that, in many instances, and considering the perfection of antiseptic treatment today, it is a safer and a wiser proceeding to remove the pulp prior to inserting the filling, rather than to risk its sudden death and infection of the apical regions. This is undoubtedly sound doctrine, but it is applicable only in proportion to the age of the patient. That is to say, the younger the patient the less excuse have we for intentionally devitalizing a pulp. In view of this self-evident fact, even the most radical destroyers of pulps, bend every energy towards the conservation of the pulps in

young teeth, and to this end they pin their reliance to temporizing, with plastics. Here, then, we arrive at a point where even the American dentist discards gold, and utilizes a material which is perishable in the environment. Here, then, we find a class of cases where porcelain must appeal to us, not because of its beauty, but because it is more permanent, and more conservative of the health of the tooth, than any other material in our cabinets.

Coming to the second advantage, the fact that the filling is made out of the mouth and inserted quickly and in one piece, we find that once more it appeals to us in exactly those places where we reluctantly discard gold. That is, there are many localities where, because of the time required for a gold filling, it would be impossible to maintain dryness of the cavity sufficiently long to permit us to insert a perfect gold filling. Many such cases will occur to your minds, so that I need but mention a few. Some of the most beautiful fillings that I have seen made by Dr. Jenkins have been along the gum margins, on the buccal surfaces of lower molars, the fillings being half under the gum. We all have had the experience that even after the use of gutta-percha or other packing to push away the gum, we have met such a flow of saliva as to preclude the successful use of gold, so that we have been compelled to rely upon amalgam. Here it is possible, it is wise, nay, I will say, it is the very best practice to use porcelain, and yet it is a situation where the beauty of the work is absolutely unimportant. In true American fashion we choose it because it is the most durable and the most useful material.

Another difficult position is where the improper use of clasps has resulted in abrasion and subsequent caries about the necks of molars, usually extending below the gum and commonly very sensitive to the touch. Amalgam is the common reliance, and too often the electro-chemical action caused by the contact of the gold clasp with the amalgam filling, leads either to reappearance of caries or death of the pulp. Here is a place where porcelain is useful, both because it is a non-conductor and because it is made in a single piece and may be quickly inserted, requiring a minimum period of dryness. I show a specimen of this class of work where it will be noted that the cavity has been cut entirely below the line of enamel, a fact which would almost always preclude the successful use of gold, whereas it does not greatly hinder the utilization of porcelain.

A somewhat similar position, where however we may also take advantage of the artistic appearance of porcelain, is shown in another specimen where the filling is made entirely of pink porcelain. Often in mouths where there may be no recession along the palatal side of the teeth, we find extensive recession of the gums along the labial aspect of

**Use of Gum
Colored Porcelain.**

the cuspids. The exposed roots become very sensitive, and for this reason perhaps, proper brushing is not accomplished with the result that caries sets in, extending under the free margin of the gum to a considerable distance. Here we frequently find great difficulty in using a clamp, so much so that very many ingenious devices have been invented to aid us, yet with half a dozen in our cabinet we too often meet cases where the rubber dam seems inhibited. But even where we succeed, and place a gold filling, it is a large glaring display of gold, carrying constant menace to the pulp which it so closely overlies. The use of gutta-percha for a day or two, will push away the gum sufficiently so that a perfect matrix may be made, showing all the outline of the cavity edge, with absolute accuracy; and, much more quickly, and certainly with less pain to the patient a porcelain filling may be made, which, constructed of the gum-colored porcelain, absolutely defies detection, and restores the tooth apparently to its original size and shape.

**High Versus Low
Fusing Porcelain.**

Advancing now to the extreme possibilities of porcelain, I must touch for a moment upon the controversy between the advocates of high and low fusing bodies. I believe that there is a general feeling throughout the country that the high fusing is the more reliable. This has come about by the constant repetitions of a few writers favoring high fusing bodies, while the more conservative experimenters with the low fusing materials have felt it best to devote their time to mastering the many intricacies of technique, satisfied that their confidence in Dr. Jenkins's material would sooner or later manifest itself beyond cavil. While I believe that the Jenkins body is the best for practical purposes, I must in common honesty admit that I have not used any of the other higher fusing materials. Consequently my deductions must be considered with due relation to the fact that I discuss high fusing porcelain only from the claims and exhibited work of its advocates, and not from practical experience. I have, however, endeavored to make matrices with platinum, some being in one instance furnished to me by Dr. Head, from which I may argue that I have experimented with the proper kind of platinum. In my hands, at least, the platinum matrix limits the use of porcelain. Remembering that after all there must be some space between the filling and the tooth because of the necessary presence of cement, we must admit as an honest basis of argument that many cavities can be as easily managed with platinum as with gold foil. But I find, and think the fact cannot be disputed, that in proportion as the size and depth of the cavity increases the platinum becomes less and less a possibility. This, if true, entirely discounts the high fusing method, for the only advantage that even its most ardent admirers make for high fusing material is that it is stronger,

which however is not true. But for a moment admitting this, we must allow that in proportion as the porcelain is exposed to the stress of mastication, the demand for strength increases; yet it is exactly in compound cavities that the platinum matrix becomes increasingly inaccurate in relation to the extent and depth of the cavity.

**Large Contour
Fillings in
Molar Teeth.**

When Dr. Jenkins was last in this country I endeavored to persuade Dr. Head, or any other high fusing body advocate to make a filling for the same cavity as that for which Dr. Jenkins would make one, and I had in mind one so extensive that I doubted whether the test could be met with a method relying upon platinum for a matrix. I failed to get the clinicians to agree upon such a test, and at that time did not feel sufficiently skilful myself to risk the condemnation or seeming failure of the Jenkins body, which might result from my own lack of ability. For this occasion, however, I have made a large contour

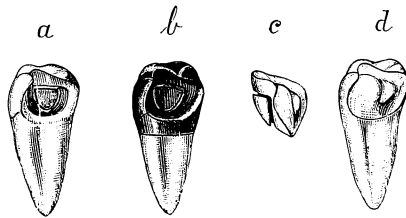


Fig. 1.

filling as a specimen of what even I, with my limited experience, can accomplish with the Jenkins body. To those who have not tried it I wish to state that I find it more difficult to get a perfect result working with a dried tooth out of the mouth, than when working on living teeth. It seems impossible to prepare the cavity margins as perfectly as when operating upon living tissue.

In the specimen now shown (Fig. 1) I have endeavored to reproduce a case from actual practice, one which combined every useful characteristic of porcelain. In the illustration *a* shows the cavity; *b* the extent to which the matrix is made to overlap the edges, thus affording a guide in contouring; *c* is the filling with undercut groove for retention, and *d* the filling in the tooth showing restoration.

In the dried specimen the pulp chamber has been encroached upon, but that was an accident, which however only increases the value of the test by deepening the cavity, for it dissipates the argument that the shrinkage of the Jenkins body distorts the shape of the matrix. In the practical case the patient was a Miss of ten who presented with the disto-lingual

section of a sixth year molar lost, and caries extending below the gum at the distal aspect, the pulp being closely approached but not exposed. I will ask those who examine the specimen to decide for themselves the chance of success with a gold filling of that magnitude, in a moist mouth of a nervous, irritable Miss of that tender age. Yet a filling in every way as perfect as the specimen shown was made and inserted, the gum having been first pressed away by temporary fillings of gutta-percha and the tooth kept dry long enough for placing the filling by using cotton rolls, with a combination clamp which depresses the tongue besides holding the cotton roll in place. The saliva ejector, of course, also assisted. In examining the specimen shown I will ask the gentlemen to observe the accuracy of the marginal adaptation, and to turn the tooth in the fingers to view the contouring from every aspect, as well as the restoration of knuckle, which however was, of course, not an essential feature in this instance, where the twelfth-year molar had not as yet erupted.

Having touched upon the word knuckling, I may pause a moment to reply to the mental queries which may have been aroused in the minds of some. The accurate restoration of contour so as to produce contact is largely a matter of skill and comes with experience. Here, however, the gold matrix is more helpful than the platinum because the gold can be made to cover so great a surface of the tooth beyond the cavity margins (Fig. 1 b) that we have not merely an impression of the cavity, as when using platinum, but in effect an impression of the whole tooth with a cavity in it. This gives us the lines that fairly indicate the restoration required. It is good practice to over-build a little and then obtain space by separation, to permit placing the filling. This assures contact when the teeth resume their normal places.

Before passing from the availability of porcelain

Durability of Jenkins's Porcelain.	I must say a word in regard to the comparative durability of the Jenkins material. That which is at present offered is an improvement both in color and strength over what was first placed on the market. The present product in my hands not only gives great satisfaction, but seems to have very extraordinary strength, even very thin edges being surprisingly resistant to stress. As an explanation of my meaning, formerly I found that if by chance the material had been permitted to extend beyond the margin of the cavity, as indicated in the matrix, the feather edge resulting was quite brittle, and would shatter if brought into contact with a paper disk. Now I find that even very thin edges of this character may be ground away with fine cuttlefish disk without breaking, thus allowing reduction to the original edge and polishing of the same. I also find that after setting a filling, should it seem requisite, the margins may be polished with strips
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as safely as where metallic fillings are similarly treated. The Jenkins porcelain will scratch glass, which I think a good evidence of its density.

**Method
of Construction.**

I pass now to a brief consideration of the construction of the porcelain filling, and here I call attention to the fact that, as an advocate of the Jenkins method, I speak of porcelain *fillings*, whereas the high fusing men speak of porcelain *inlays*. I think this significant, as inlays are presumably more shallow than fillings, and act more as a veneer than as a true filling. It has seemed requisite to all porcelain workers, so far as I have seen recorded in their writings, that the aperture of a cavity should be larger than what we may term the interior arrangement thereof. This conclusion has been reached empirically from the fact that it is needful to be able to remove the matrix without alteration of shape, and finally to insert the filling whole rather than in particles as we do gold, or as a plastic. A necessary result has been that the sole reliance for retention has been upon the so-called cements. The failures with porcelain have been almost exclusively due to the failure of the cement. Curiously enough it has been found that whereas the cement adheres to the cavity walls, whatever their shape, this is not true in relation to the porcelain, the filling coming away clean. Consequently the need of roughening the under surface of the filling was early discovered, but even this in many instances was an inadequate reliance. Having the advantage of observing Dr. Jenkins at work, I noted the manner in which, with diamond-copper disks he cut grooves in the porcelain, and I saw at once the advantage of his method, as well as the fact that it had never been adequately explained in print. At the next public discussion of this subject, therefore, I ventured to describe it as a continuous groove which results in forming upon the under side of the filling, a shape similar to the head and neck of a collar button. (Fig. 1 c.) Since preparing porcelain fillings in this manner I have not lost one. Nevertheless, I have long felt that a totally different cavity preparation was a great desideratum in this work, if true permanency is to be achieved.

**New Cavity
Preparation for
Porcelain.**

I take the liberty of hoping that I have solved this problem. I believe I have found a simple yet effective cavity preparation, whereby the porcelain inlay will be mechanically retained, as is a gold filling, the cement being utilized merely to seal it into position and only in a measure acting to retain it. I take pleasure, therefore, in exhibiting tonight the result of my experiments. The specimen shown is an extreme example, chosen because working with dried teeth I can better show the cavity formation in a large cavity than in a small one, and also because in this way I once more show the possibilities of filling

exceedingly deep cavities with the Jenkins body. (Fig. 2, *a* the cavity showing countersunk V-shaped groove; *b*, the matrix in the cavity; *c*, the filling in place.)

The new cavity formation which I suggest to porcelain workers may be likened in homely phrase to the sliding cover to a wooden box. The principle is the same, but it differs from the box cover in that the groove in which the filling slides to place must not have paralleled sides, but, on the contrary, should be approximately V-shaped, with the widest divergence towards the entrance of the cavity. This style of cavity preparation will be particularly applicable to compound cavities which reach the masticating surfaces, as the mechanical arrangement will materially resist the stress of mastication, thus reducing the strain against the cement to absolutely nothing, the filling being so placed that even without cement it could not be displaced by normal stress (though, of course, in the upper

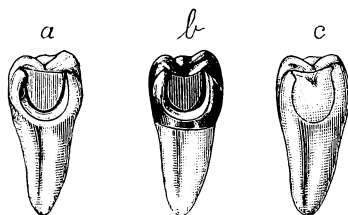


Fig. 2.

jaw gravity would dislodge it). The cavity formation may also be advantageously used in approximal cavities, the filling sliding in either from the labial, buccal or palatal surfaces, as indicated by the requirements. A great advantage in approximal situations is that with this shape of cavity the need of very great separation is avoided.

Extreme care, however, will be needed in making the matrix, and especially in removing it, and I advise that if in removal a close scrutiny detects a slight alteration, either the overhanging portion of the gold which hindered its free withdrawal must be cut off with scissors, or else the divergence of the cavity margins, and the sliding grooves must be altered to facilitate what, in moulder's phrase, would be called "the draw." After such alteration either in the cavity or in the matrix by trimming, the matrix should be returned to the cavity and readjusted. This should be repeated till a perfect matrix is removed without alteration in shape.

Removing the Matrix.

I will offer another little suggestion which has recently given me considerable satisfaction. The matrix, as we have been repeatedly told, must be "teased" out of the cavity. I find that this may be

greatly facilitated by using an explorer point on the end of which is placed a tiny piece of separating or wedge rubber, the pure gum affording just enough friction to start the matrix, without tending to alter its shape. In large cavities, a small ball burnisher over which is stretched a bit of the smallest French rubber tubing serves the same purpose.

In summarizing, by way of conclusion, I would call attention to the fact that, while I admit all that can be claimed for porcelain as a cosmetic method, I have endeavored to point out that there are many places where it might be advantageously utilized because of other and more important characteristics than mere beauty. And it is noteworthy that whereas, considered solely from an artistic standpoint, it displaces gold, upon which American dentists have so long and so safely relied, when we choose it because of its inherent advantages, it is not gold so often as amalgam and the other plastics which must give place to it. And, while I believe that in numerous instances porcelain may and should be selected because it is the more artistic material, I also believe that those who take up its use first in those localities where it can be relied on as the most permanent and most healthful conserver of the teeth, will learn by their experience and gain such skill in manipulation and management that, when they essay the use of the material mainly as a beautiful restorer of lost tissue, they will achieve a higher success, a more permanent result for their patients and establish a more lasting utilization of porcelain as a filling material.

Some Old and New Points on Examination of the Blood.

By ROBERT LINCOLN WATKINS, M.D., New York, N. Y.

Read before the Central Dental Association of Northern New Jersey.

For more than a dozen years I have been interested in the subject of blood examination, and when I commenced my work in this field it was far different from what it is at the present day.

You all know that it was a thousand years after the destruction of Pompeii before the people believed the stories of this ancient city to be true; so while the subject of blood examination is practiced today in every hospital, and the subject from the American investigator's standpoint has been before the profession for more than fifty years, only recently

has it received the attention which it should. During that period it has been recognized only by the few; now the subject is looming up on all sides in a new light.

Before taking up the subject of the blood, I will first show you some lantern slides which apply directly to the subject of dentistry—and these are some bacteria which I took for the late Dr. Henry Nash. I do not pretend to know anything of bacteriology and much less about the teeth and dentistry. But these things Dr. Nash asked me to photograph for him and I reproduce them here for you, thinking that you may be interested.

The first picture is that taken from the teeth of Dr. Nash himself,

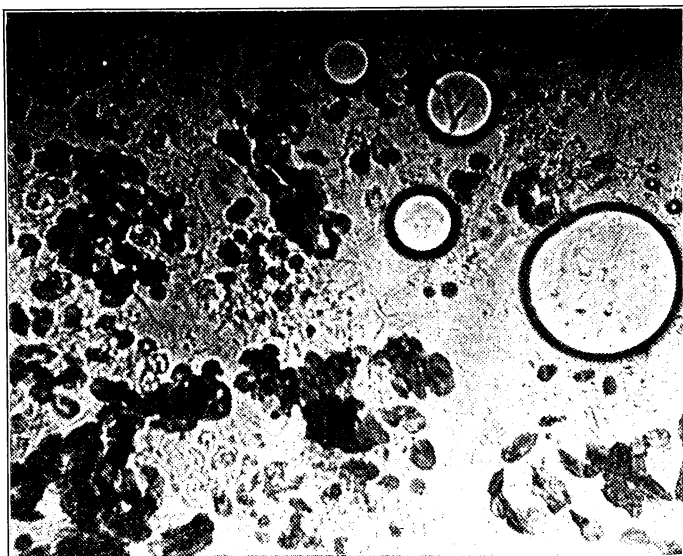


Fig. 1.

the object being to show the germs of the mouth and possibly those that might be found on the gums about the teeth. It will be noticed that blood was necessarily mixed in and the corpuscles are clearly shown in connection with the germs of various kinds (Fig. 1.)

Slide No. 2 was taken from the sordes of the teeth of a patient the Doctor brought in. The sordes were taken off from the tooth with a lance and placed on the glass slide over which was placed the cover glass. It was then examined and photographed, as you see it, without further preparation (Fig. 2).

It will be noticed that the *leptothrix racemosa* reported by Dr. Williams of London is plainly seen. This is what Dr. Nash desired to obtain. You will notice that this germ resembles sheaves of wheat, the sheaves apparently being made up of micro-cocci.

We now come to the subject of fresh blood examination. The method of obtaining the blood is too simple to need an explanation. I will simply say that the blood must be fresh and of course moving under the microscope when it is seen. You can easily obtain your own blood with an ordinary lance.

Foreign investigators have given most of their attention to examining dry blood, counting the cells, both red and white, while the American method of investigation has been entirely with fresh blood.

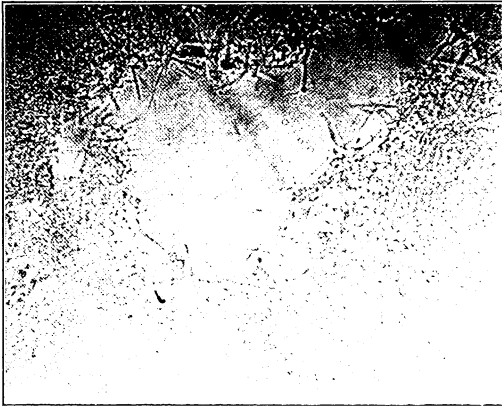


Fig. 2.

The next slide shows fairly normal blood (Fig. 3) in which case there are from three to five hundred red cells to one white one. Two white cells are visible in this field with their granular contents.

Photograph No. 4 (Fig. 4) is the same as No. 3 five minutes later. You will notice that one white blood-cell is undergoing its characteristic amœboid changes. They are often called the scavengers of the system, for their business is to carry off disease and repair tissue. In this picture it will be noticed that a cell is apparently throwing out a finger-like process, trying to gather up some foreign body.

This subject was described and several photographs were shown in the *Medical News* some years ago by me. It is a very interesting thing to watch, for these cells will change their shape for hours. They gather up the fat globules and bile pigment, crystals or any foreign matter

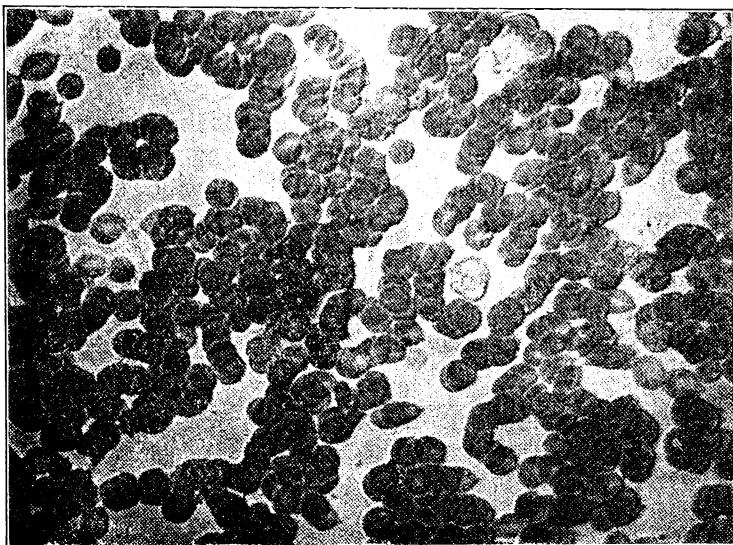


Fig. 3.

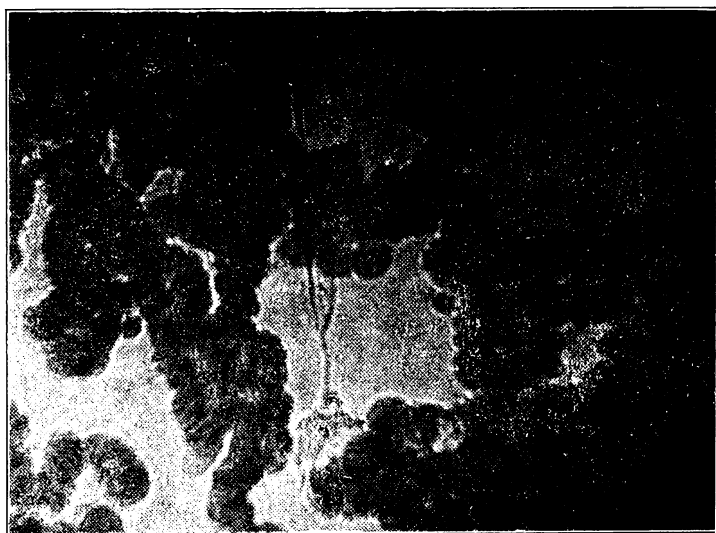


Fig. 4.

that may be in the system. Sometimes they become so swollen that they stop up a small capillary. Sometimes such results occur and cause paralysis or apoplexy. They are often discharged, when their work is done, in the form of pus.

The blood is made from the glands all over the system; the red cells are the nuclei of the white and in reality the blood is manufactured by the white blood cells. In order to demonstrate that the scavengers are called out when foreign matter is introduced into the system, the speaker some years ago tried the experiment of pricking the chest, both front and back,

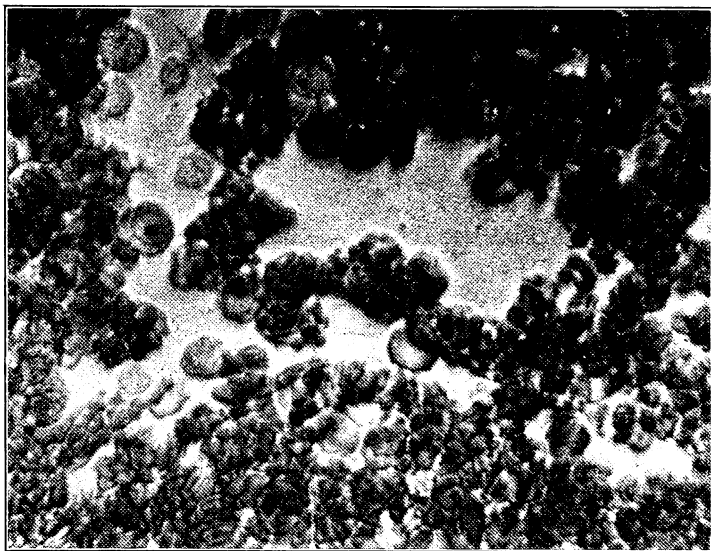


Fig. 5.

with a cluster of very fine needles. This is a treatment that is in vogue in some parts of Germany and is a very convenient counter-irritant. After the chest-wall is pricked, the blood oozes a little and an irritating oil (croton) is then painted on the surface.

Fig. 5 shows my own blood. Before this operation was performed it will be noticed that the white cells here are in their normal number. Fig. 6 was taken a couple of days after. The figure shows the increase in the white blood cells, thus demonstrating that their function is to eliminate something at least. Of course, after this the chest was covered with a hard exudate filled with pus cells. The temperature at this time went up

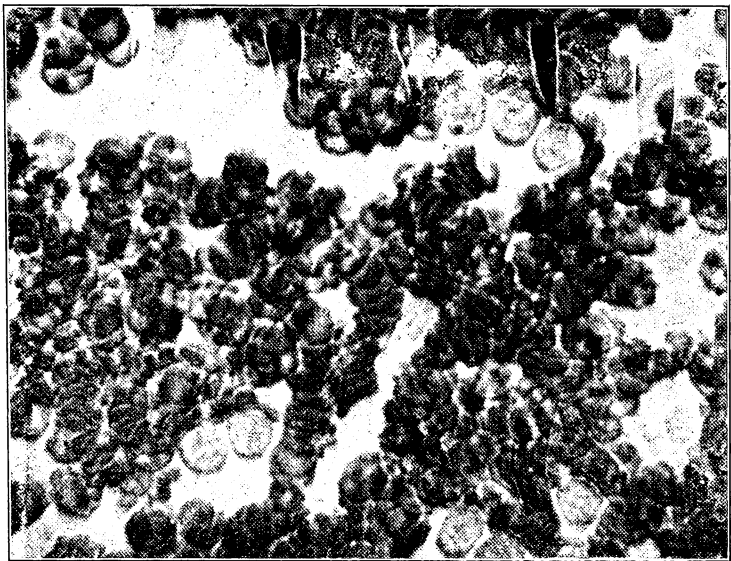


Fig. 6.

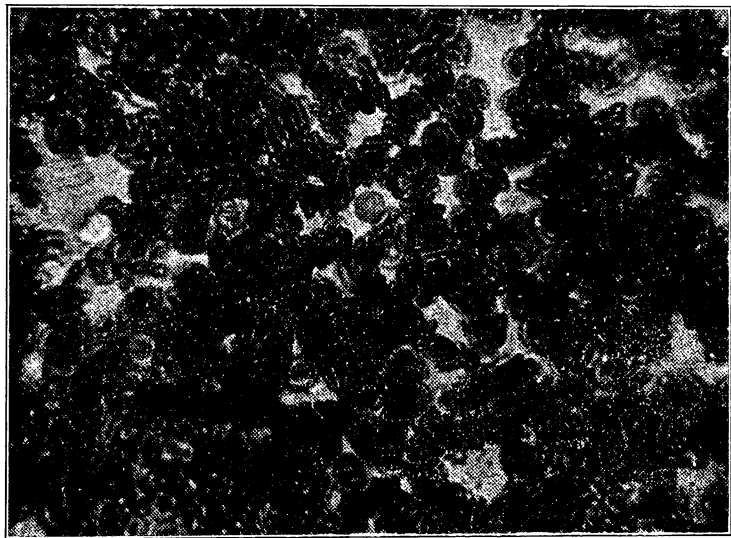


Fig. 7.

to 102 or 103 degrees, still I was able to attend to business, for I was in Baltimore at the time, although very uncomfortable.

Now we come to the subject of healthy and unhealthy blood. If healthy blood is free from rheumatism or consumption, the cells are evenly arranged—there should be no agglomeration, and the cells are themselves round, separate and distinct.

This is well shown in Fig. 7. I will also show on the screen the opposite condition, showing the cells stuck together (Fig. 8). A white cell can scarcely be found and the red cells would seem to be very much decreased in numbers. It is very plain to anyone from these two pictures



Fig. 8.

that one is good and the other bad. This man died shortly afterward in Bellevue Hospital, where I obtained the specimen.

Fig. 7 was from a physician who had a bad cough with a pain in his chest and was confined to his bed. He thought that he had consumption of the lungs. The photograph shows that he did not, and today he is a well man, and that was taken eight years ago.

There has been a great deal of skepticism as to whether tuberculosis can be demonstrated by blood examination. Fig. 9 shows the blood taken from an advanced case. I am very glad to show you this because it is so distinct and when once seen it is perfectly visible on second examination. It demonstrates also that the blood must be fresh. This matter

that you see in the center of the field, and which is plainly visible, is tubercular matter. Now this does not keep on exposure to the air, but disappears.

The next, Fig. 10, is the same specimen as the previous taken ten minutes later, and you will notice for yourselves that tubercular matter is scarcely visible. Through some action of the air or light, it is apparently dissolved. The blood cells, it will be noticed in both of these cases, are not as thick or abundant as they should be. This tubercular matter is present in the first stages of consumption long before the bacillus makes its appearance, therefore this disease can be noticed in its incipency and a cure can be more readily effected.

Fig. 11 is the blood taken from a man who had angina pectoris. He

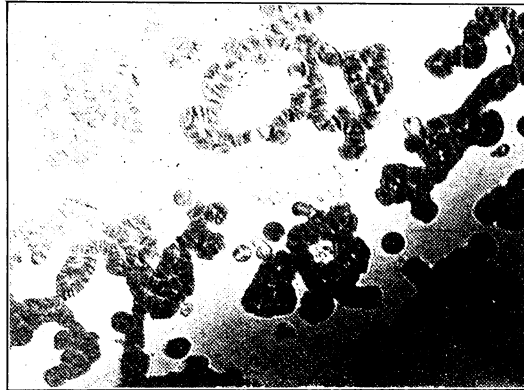


Fig. 9.

was well known among New York physicians, as he, for a small consideration, allowed physicians to examine him, being really a curiosity. While he should have been dead, he was living, for the disease was well marked. It shows that the blood cells are crenated on their exposure to the air and it also shows that there is an absence of fibrin which should, according to the books, be present in these cases, but practically it is not.

There are several forms of fibrin in blood; that which comes nearest to the healthy in this collection of pictures is shown in Fig. 12. I simply point this out in order that you may see the contrast when you observe the thick long skeins of fibrin as they are found in embolism and many forms of rheumatism. This fibrin also becomes more visible the longer the blood stands under the microscope. Fibrin not present in Fig. 9, but is now plainly visible in Fig. 10. Ten years ago, when speaking of fibrin in the blood to a doctor, he declared that no such thing

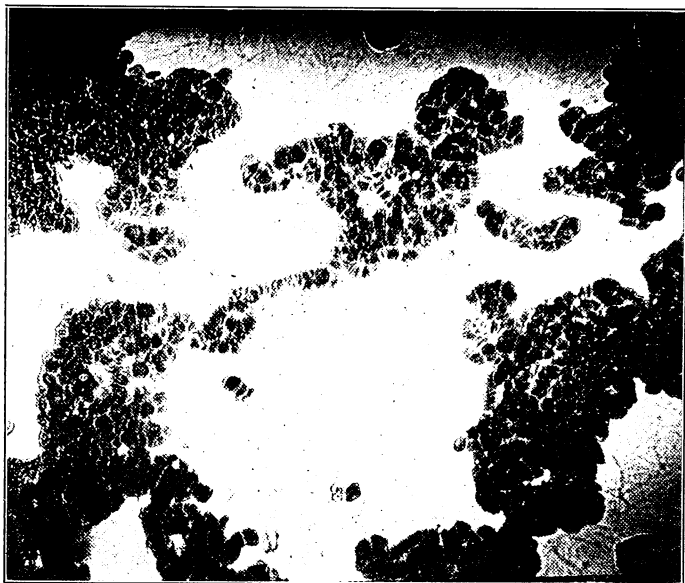


Fig. 10.

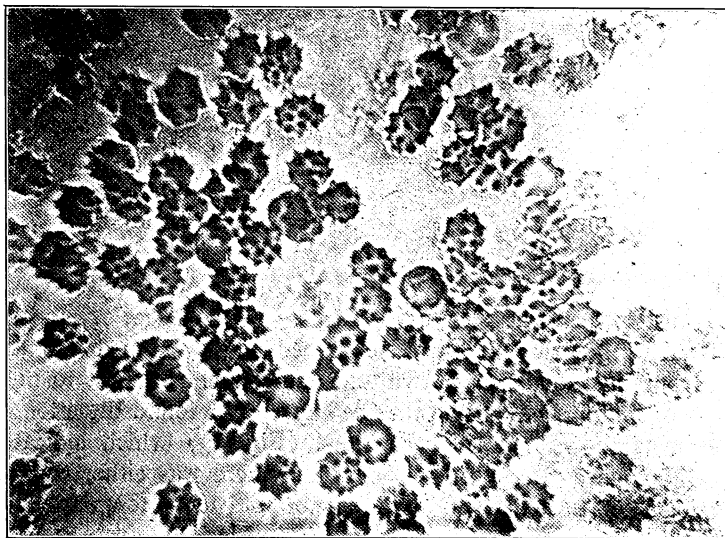


Fig. 11.

existed or could be found with a microscope, but today its existence is a well recognized fact.

To show you what a foreign stamp does for a new thing, let me tell you an instance that occurred the other day: A gentleman from William Woods's Company came to my office to sell their new book, "The Reference Hand-book of Medical Science." He thought I would be interested in the blood and turned over to that section. On one page there were two pictures showing normal and abnormal fibrin; but instead of giving an American credit for it, they had obtained the recent work of some foreigner and put this in their book.

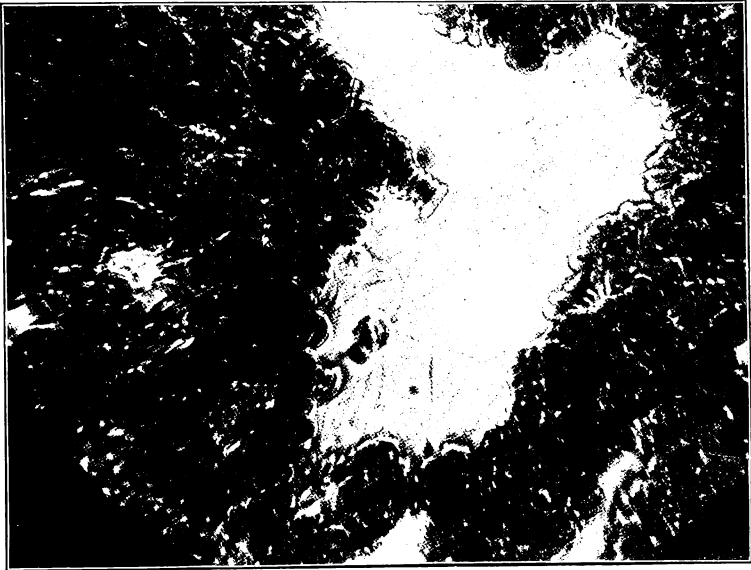


Fig. 12.

Some two years ago Dr. Frank Miller sent me a case of supposed specific trouble; the young man was sick in bed, and I was unable to get to the house; but the blood was drawn and immediately brought to my office. Instead of finding the disease that he expected, I found these long skeins of fibrin as shown in the cow's blood (Fig. 13) which indicated that there had been a rheumatic tendency and there was either embolism or some form of heart disease. The Doctor told me a few days later that they had had no trouble in finding the heart lesion, which they had not looked for before, but had now located.

There are various forms of crystals found in the blood, but they are too numerous to go into the different varieties. I will simply show you some of the crystals which illustrate it. You will notice that they look like broken pieces of glass. They are very brittle and insoluble. In their normal condition they are hexagonal. People who have them are subject to headaches, pains in the joints, stomach and limbs, and some of them are full of them and have no pain, although they give the rheumatic history, and still again they may suffer from softening of the brain or some other cerebral lesion.

Fig. 13 is that of a cow's blood. The cells are about the same size.

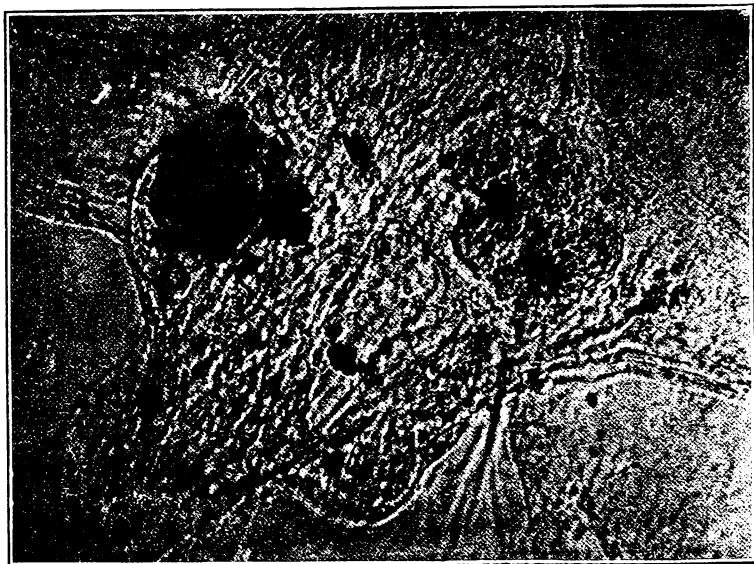


Fig. 13.

perhaps a little smaller than in man. It will be noticed that the long skeins of fibrin have collected a mass of sticky blood cells and a big lump of bile or a crystal of some kind; or perhaps it is some foreign matter, its outline is not very distinct.

This kind of blood, or in fact microscopic embolus, is always floating wherever there is a paralysis or embolism. This condition exists in cow's blood as well as in human beings.

Two years after the above-mentioned photograph was taken, I happened to be in town and the farmer to whom the cow belonged told me in

the course of conversation that this animal one day ran around two or three times in its stall and then dropped dead.

Fig. 14 exhibits a specimen of thick fibrin and adhesive cells.

This was a case sent to me by Dr. G. Lenox Curtis recently, and I found a rheumatic condition which shows here quite markedly; for a person who has been suffering from rheumatism so long, a patient of about sixty years old, the specimen is fairly good otherwise.

This, gentlemen, closes my exhibition of slides; but I have something probably more interesting to show you, namely, the Micro-mutoscope.

This apparatus was made for the purpose of demonstrating to

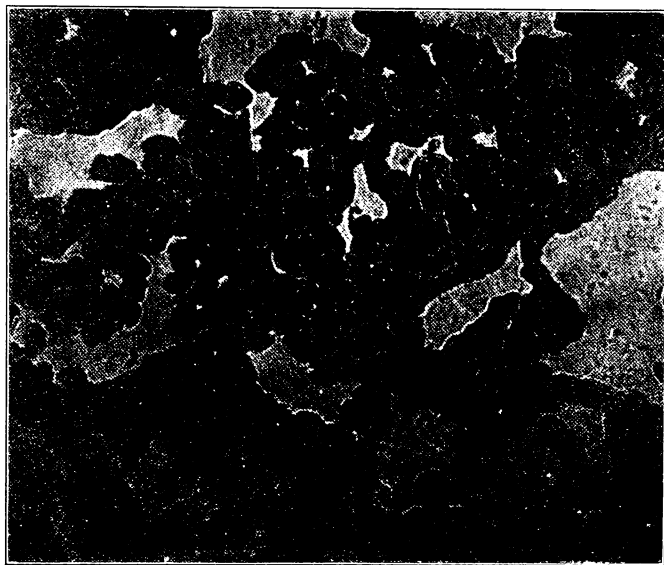


Fig. 14.

the student the movement of blood as it occurs under the microscope. It is simply a combination of the vitascope and the microscope.

The camera is placed over the tip of the microscope and the picture is taken. You all know that in order to get these pictures and obtain motion it is necessary to get at least sixteen pictures a second. This has been done in this case through the microscope. There are one thousand pictures to the minute. The first one is magnified about a thousand times and represents the germs that exist in fermenting urine. You can see them very readily as they jump about on the screen.

The next picture is taken with a one-sixth objective and shows the

blood cells as they circulate under the microscope. You will notice that they are very characteristic and natural.

The next picture is that of a white blood cell undergoing its various ameboid movements. In other words, it shows the police force of the human body on duty.

The next picture is that of a Croton water rotafer. This is the water we drink in New York every day.

This rotafer looks like a fish in its magnified condition on the screen. You will notice that it is very easy to see this microscopic life as it takes in its food and spits it out again. You can also see its tail, like the fins of a fish, as it spreads it out in its movements to swim. You will also notice that it has a kind of a sucker in its tail, by which means it holds on to the glass.

Now, gentlemen, this closes my exhibition. I thank you very much for your kind attention and will say that this is the first time that this machine, with its microscopic enlargements, has been shown to any professional organization.

(Dr. Watkins exhibited on the screen the moving pictures above described.)





Second District Dental Society.

December Meeting, 1901.

A regular meeting of the Second District Dental Society of the State of New York, was held on Monday evening, December 9th, 1901, at the residence of Dr. Ash, 158 Park Place, Brooklyn, N. Y.

The President, Dr. W. J. Turner, occupied the chair.

The minutes of the previous meeting were read and approved.

The paper of the evening was by Dr. R. Ottolengui, the subject being "The Construction and Availability of Porcelain Fillings."

I have a little explanation to make. This paper has been prepared for another society. I promised a paper to the Boston and Tufts Dental Alumni Association, and I am to read the paper in Boston on Wednesday night. In communication with your Executive Committee I found it was planned to have an afternoon clinic and evening meeting devoted to porcelain work; they expected another essayist, but that gentleman could not come. I had this paper and I explained the matter to the Executive Committee of the Boston Society, and obtained permission from them to read it here.

Dr. Ottolengui then read his paper.

Discussion.

I think I am on record in this matter, particularly as I talked at some length in New Jersey two or three years ago on the subject, and I want to state that I stand exactly on the same ground now as I did on that evening. I have been classified with the high-fusing men. I did say, and I do say, that high-fusing body at the time when the Jenkins body first came out, was just as good if not better. Since that time, Dr. Jenkins's new material has been offered and it is better than anything I have used, and the

probabilities are wherever I have to use porcelain for an inlay (not a filling) I shall use the Jenkins body. I make that emphatic—an inlay, not a filling—because I cannot see the advantages Dr. Ottolengui has set forth for teeth far back in the mouth—especially cavities extending under the gum margins. All of us know that there must be space occupied by the cement.

**Durability of
Cement.**

You all know as well as I do that there must be a disintegration of the cement in a large majority of mouths. You all know that in many mouths the cement will last for many years, and when I am quoted as saying at the State Society that my wife had a cement filling in her mouth which lasted twenty-three years, either the stenographer, the editor, or somebody was in error, because I did not say anything of the kind. I did say she had a cement filling there for a great many years, probably fifteen or eighteen years. There are some cement fillings of mine which have been in fifteen years. They were placed, in the first year I came to Brooklyn, and they are good fillings today. Had I placed porcelain fillings the porcelain would have had the credit. It is not fair to say it. The cement will do it as well as the porcelain. I am not decrying porcelain. There is not a man who should not have it in his office. There is not a man in this room who has not had cases where it is very applicable; but for cavities in the rear of the mouth, as described by Dr. Ottolengui, I fail to see the philosophy of it. That part of the question I have made emphatic before. I stand on exactly the same ground as I did three or four years ago, at the Central Dental Association of New Jersey.

**Advantages of
Platinum Matrix.**

I have been accused of selecting platinum because I use the high-fusing body. Now, when I use the Jenkins body, I still use the platinum. Dr. Head uses platinum 1/1000 of an inch thick. We use it 1/2000 of an inch thick. How do we know this? The margins of the cavity in which a matrix is made, I claim can be just as perfectly formed with platinum as with gold. What advantage do we gain by the use of platinum? First, with an electric furnace placed opposite the chair, regulated with a rheostat to a fixed degree, you can place your matrix right in the base of it, without immersion in asbestos or anything else, and give it the first and second baking.

Again, the essayist has said he is careful to get a perfect matrix in the beginning, before he makes his first baking. While that is only a question as to the method that suits the operator, in my hands it certainly would be an utter failure. Dr. Head, I think, claims that in filling his matrix with body, he puts in enough to fill it in one baking. Again I say

that would be a failure in my hands. The fusing of porcelain in the matrix in my office is from three to five bakings. Suppose the matrix when formed in the beginning is improperly formed (as I believe all of them are, as I do not think it is possible to make an absolutely perfect matrix); if a given quantity is placed into that matrix and fused, that will hold it in position when replaced in the cavity, and the margins of the matrix can be accurately adjusted. I can get a much closer adaptation with my method than I could if I were to resort to the other.

I want to qualify all this by saying that the first I knew of the line of thought on which Dr. Ottolengui was going to speak was when I went to his office yesterday afternoon. He very kindly showed me what he had done, and it is certainly very beautiful. I cannot do what he can do.

Dr. Ottolengui.

Yes, you can.

Well, I know I cannot do it with the satisfaction

Dr. Van Woert. to myself that you obtain, and very few men can.

Admitting that the difference in thickness counts for very little, there is this to be considered; platinum has rigidity, and yet is pliable enough and can be made one-half the thickness of gold without the danger of fusing or melting. You ask how we know this. I have here No. 30 foil, which can be measured with a micrometer, and I will tell you how it measures it. There is a screw in this (showing micrometer) which runs back and forth to the point of contact. That screw has forty threads to the inch. Take from the zero mark one line, and you will see how thick your foil is. If you will examine carefully the gold foil and the platinum, rolled gold that we roll ourselves, and the pliability of the platinum, you will see that while the gold foil may be, when annealed, possibly a little more ductile, although I never found it so in my hands, there is enough pliability in the platinum to serve the purpose for which it is made. This question was brought up before the First District Dental Society, or the Odontological Society, and someone explained the impossibility of making these measurements. That is absurd, because such measurements are made constantly. People say you cannot measure $1/1000$, or $1/2000$ of an inch. You can, and you can measure $1/5000$ of an inch. There is no disputing that, so when a man says it cannot be decided positively, it is simply ignorance of such an instrument as I show you.

I think every man in this room, and every dentist in the United States, and in the world, owes a debt of gratitude to Dr. Jenkins. There is no question about that, and I do not want a member here to go away with the idea that I am trying to throw cold water on porcelain work. On the contrary, I want to do all I can to place it on a solid foundation, where it will be in the office of every dentist for years to come.

Dr. Ottolengui referred to laying this on the shelf with cataphoresis and copper amalgam. With **Possible Disintegration of Cement.** cataphoresis there were things we could not foresee; but in this we can foresee something—one of the greatest disadvantages that can happen, namely: the disintegration or solution of the cement at the union of the porcelain with the tooth. What operator would think of inserting cement into a tooth and putting into it a gold inlay, with the slightest trace of the cement showing at the margin? Would he consider it a success?

Dr. Ottolengui.

They do it out West.

Dr. Van Woert.

Then I am glad we are in the East. You make porcelain fillings, according to what Dr. Ottolengui has said, and you place them in approximal surfaces where the margins are hard, where the disintegration of the cement is very slow, possibly, but sure, in some mouths, and where a serious amount of caries must proceed before you can detect it. On the other hand, how many of you have found teeth that were practically undermined with caries, and the orifice of entrance a mere trifle? What would you do if the disintegration were such as to allow the introduction of micro-organisms there to produce caries? It will not only eat the margin out, but the whole filling. How will you then preserve the pulp of that tooth? Is it the gold or the amalgam that kills the pulp of teeth? Have we not been told time and time again, and have we not had it proven in our own practice, that a cement filling itself will kill a pulp, if we are not careful how we insert it? Will the porcelain save the pulp? All the advantage of porcelain is that it does not convey the changes of temperature as readily as the metal, and the end may be a little longer in coming, but if the cement is the cause, it will die just as well with porcelain as with gold.

I will not go into detail of why the cement kills pulps. It has been said there is arsenic in all cement, but that is a question. The man who puts his faith in porcelain fillings, will run his head up against a brick wall before he is through, and he will have less practice in ten years than he has today. But on the other hand, if he will put a porcelain outfit in his office, and use it with discretion, in the mouths of those people who have intelligence enough to know what he is doing, he will have more practice in ten years than today.

That specimen passing around, is Jenkins's body. Do not get the idea that I am condemning Jenkins's porcelain. I am not. I am condemning gold as not being as practical for the matrix as platinum for the reason that to protect the gold you must put it in an investment to keep it from fusing, if you lay it on the bare floor of an electric furnace. If on the other hand, you have placed it in a gas furnace, I do not know what will hap-

pen, because I never use one; but the platinum can be laid on the floor of an electric furnace, and it is only a question of a moment when it is fused absolutely. I do not believe there is a flaw in this unless I have not packed it down tight.

Dr. Jenkins recommends alcohol in putting the **Alcohol Versus Water for Mixing Body.** body in the matrix. I claim that water is better—particularly distilled water. It does not evaporate as rapidly. If you take a bottle of any kind and pour in powder or granules until the bottle is filled to the top of its mouth, then take that bottle and tap it on the table, you will be surprised to see how much more you can get into it. They are standing in all sorts of ways when you first put them in, and they can be shaken down so as to lie more closely together than when first put in. If alcohol is used, there is not time to do that. If a matrix is held in the foil carriers and tapped, you will be surprised to see how much water rises to the surface. It will apparently overflow a dozen times. That method will produce a denser and smoother inlay than if alcohol is used. That is not anything against the Jenkins body—only a better way of using the Jenkins body.

I will measure the gold for you with the micrometer; it measures $1/2000$ of an inch, and that is claimed to be No. 30 gold. I want you all to measure these metals with the micrometer, and see what you can make out of it, and I want you all to examine that inlay that I have passed and see what you think about the margins. I do not believe, personally, that I can do any better with the gold than I have done when using platinum. Dr. Ottolengui says I can, but I do not think he knows what I can do.

I have brought with me my slab for porcelain **Materials for Porcelain Work.** work. This has five little depressions, in which you can place your body in case you want to make a combination of colors—something you may not have on hand. This spatula is for ordinary use, but in placing the body into the matrix you will find that brushes will carry it better than any spatula I have seen, and you can pack it down better, and the tapping will throw the water to the surface. I use regular camel's hair artists' brushes.

I said something of this kind in Albany. I left the room, and was accused of imperfect manipulation as the cause of my discouragement of porcelain work in toto. That is too silly to answer. I do not pretend to make perfect inlays, and I do not think there are many men who do. I believe that so few men do it you could count them all on one hand. If that is the case, and you all adopt porcelain work, where will we all be five years from now? I said in Albany four or five years ago (and I put porcelain on the same basis), that nothing has come to the dental pro-

fession, in my experience, that has done so much harm as crown and bridge work, although there is nothing that has come to the profession that is so advantageous to the public and the dentist as crown and bridge work, when properly used. Porcelain filling and inlays stand exactly upon the same ground, if properly applied, and I think Dr. Ottolengui well expressed this same idea in his essay. I think if this is as indiscriminately used as crown and bridge work has been, it will be a greater evil; but the possibility is very small, because you cannot make inlays in the time you can do crown and bridge work, and besides, you can buy crown and bridge work ready made, and you cannot buy ready made inlays.

I do not believe after listening to what Dr. Van
Dr. M. L. Rhein. Woert has just said, that we can find very much difference between his views and Dr. Ottolengui's on this subject. I was impressed by the very fact in Dr. Ottolengui's paper that Dr. Van Woert mentions—the strong qualifications that he places upon the use of the work. There is very little doubt that that is the true and correct way in which this subject should be met by the profession. A great deal has been said in the past few months, in criticism of porcelain work generally, because of the facts that Dr. Van Woert has just brought out—the use of it in places where it is not applicable, and when it should not be used. Up to last Spring, I was strongly convinced that the high-fusing body was superior to the Jenkins body—the Jenkins body which Dr. Jenkins exhibited to us when he was in this country two years ago. I had the good fortune last Summer to spend about four days with Dr. Jenkins at his office in Dresden, and the very first thing he showed me astonished me. It was at once evident to me that I was handling a piece of baked porcelain that was far superior to anything I had ever seen for the use of inlays or fillings for teeth. I turned to the Doctor, and said: "This is not the body you showed us in America," and there was a little twinkle in the Doctor's eye as he answered, "How do you know?" I said, "I can at once see it. This is the most beautiful thing I have ever seen." The density of the body, the lack of any porosity, rendered it different from anything I had ever seen. He then told me this was the improved body that he had only recently succeeded in producing, and stated that he had arrived at a result by which he obtains a homogeneous fusing of the whole body. I understood him to say that his experiments had led him to present to us a body that fused homogeneously throughout, every particle at the same time, and in that manner he has given us this body which is unquestionably stronger than anything I have seen at any meeting I have attended. I have in my own way experimented with the Jenkins body—this new improved body—since my return. I feel I am quite

a novice at the work, but it has been impossible for me to bake a porous piece of porcelain with this body. I have done all kinds of foolish and ridiculous things with it, that made it of no earthly use, but I have not succeeded in baking it in a porous condition, and that is to my mind the strongest claim for it, and I emphasize that point.

Dr. Ottolengui has demonstrated in my office the fact that the Jenkins body can be placed in the gold matrix, introduced into the furnace without any investment—that is, in the Jenkins gas furnace (I have been using both furnaces), and baked, that is, given the first and second baking, and then placed back in the cavity and reburnished in the same manner as so many advocates of the high-fusing body have claimed to be necessary, advocating the superiority of the platinum matrix on that account. I see no reason why the method as presented by Dr. Jenkins cannot be used in the same way, and I am sure Dr. Ottolengui can demonstrate that point at any clinic.

**Gas Furnace
Preferred.**

While I have been using the electric furnace ever since Custer first introduced his small furnace, and while I today prefer that furnace for ordinary crown and bridge work, for the inlay work or fillings, call it what you may, I have learned in the past two months to have a most decided preference for Dr. Jenkins's furnace. It has qualities about it when you go to use it, that you learn to love, far in advance of anything that the electric furnace has for this particular purpose. With the gas furnace, you can watch every stage of the fusing in a way that is almost impossible to do with the electric furnace. You can see the body fuse particle by particle, and gauge the exact point at which to stop. That is, to my mind, the most important thing in producing an inlay—I mean where it is used for esthetic purposes—to gauge the color—because we who have had much experience with porcelain know that the color is dependent upon not allowing the heat to advance beyond a certain stage. The moment you pass that degree of heat, you will lighten the shade. That is the point of perfection in the Jenkins furnace. You can gauge it after you have had the experience, which I have not—and I do not claim to be able to do it—but that is one of the particulars in which I am trying to perfect myself, the exact point of fusing. I can learn that with the Jenkins furnace, and not with the electric furnace.

**Non-recurrence of
Gaps Around
Porcelain Inlays.**

In Berlin I saw a patient who had a number of fillings put in by Dr. Jenkins, and the cement margins showed considerable signs of wear. These fillings had been in some years, and this is very interesting. I spent considerable time examining that mouth with the finest kind of explorers, and I had the very best at my command at the time, and I

want to say that what I found made a lasting impression on me. Although this cement was washed out in a great many places around some of those old fillings, I could not find any trace of caries, nor the slightest sign of bacterial degeneration around the margins of those cavities. This has attracted my attention in many cases, and I throw this out at this meeting. Dr. Head in his article on porcelain work, in the last edition of Kirk's book on operative dentistry, makes the assertion that a therapeutic effect takes place in the mouth when porcelain fillings are inserted with cement, which inhibits the recurrence of dental caries. To me, this statement seemed an absurdity, and I do not take much stock in it at this moment, but I must say I have examined many teeth in Dr. Jenkins's office, where I noticed considerable wearing out of the cement, and I failed to see the slightest tendency towards recurrence of decay, and I think I am able to detect it if it is present in an appreciable degree. Some of the fillings had been made seven or eight years. This is a matter that should be investigated.

**Cement Under
Porcelain
Not Dangerous.**

I also want to bring out another point in contradiction to a statement of Dr. Van Woert, where he says there is no difference between a cement filling and the cement under an ordinary inlay. There is a vast difference. The quantity of the cement you would put under an inlay is infinitesimal, and I agree with Dr. Van Woert that the life of pulps is frequently destroyed through cement, whether it be the phosphoric acid in it, or the minute quantity of arsenic; but up to the present time, I have failed to find any such deleterious effect resulting from the use of a thin layer of cement in a cavity. I have been accustomed to laying a film of cement over the floors of cavities in order to start gold fillings, for years. To my mind, there is the greatest difference in the world between that and a great mass of cement, and the greatest difference between the damage that you would get from whatever is deleterious in a large mass, and the thin layer that is between the inlay and the walls of the cavity.

**Porcelain Roots
Successful.**

It would be a great pleasure to me to hear the experience of men who have noticed and observed porcelain inlays, where the cement has been undermined—whether they have detected such conditions as I have seen; whether there is any recurrence of decay under such porcelain fillings. It is quite possible that there may be recurrence under some special cases, and not under general cases. Of one thing I am convinced, and that is, that porcelain itself—I do not speak of the cement, but the porcelain itself—around the necks of teeth, is the healthiest substance and the most compatible we can place there. The patient I showed

before this society last year, with the porcelain root, is one of the best evidences of the compatibility of porcelain with the gum. That patient I saw while I was in Berlin, where she is at the present time, and those roots are, if anything, in a better condition than when the case was presented before this society. I showed the roots to sixty or seventy dentists in Berlin, in August, and they all expressed the greatest delight at the healthy condition of the gum around those roots. This compatibility of porcelain with the gum tissue I believe does inhibit to a considerable extent a recurrence of decay.

Cataphoresis. I only want to say one word more in regard to the admirable paper. The essayist, and even Dr. Van Woert, seemed to imagine that cataphoresis has been placed upon the shelf.

Dr. Ottolengui. We do not imagine it; we know it.

Dr. Rhein. Cataphoresis is not by any means on the shelf. I must deny that assertion. It is a form of treatment that I would abandon with much regret. I use it today in the same manner that I have always used it, and with the same success.

Dr. Ash. I wish to present an inlay made by Mr. Leonard Jenkins in my office, at the clinic this afternoon, for the purpose of demonstrating the advisability of the use of alcohol, in contradistinction to water, in answer to the point raised by Dr. Van Woert. The filling was not tapped down, but was made in a very rapid manner, and simply added to and baked in the ordinary way. After the filling was made, it was put on the bare floor, and a man one hundred and eighty pounds in weight stepped on it. You can look at it and see the close adaptation of the edges.

Dr. Van Woert. I speak only of the density. To prove that, you must grind this tooth and polish it.

Dr. Ash. It seems impossible to make it any more dense.

The President. Mr. Jenkins, a son of the inventor, is with us. He gave us a very interesting clinic, and if he has anything to say now, we would be glad to hear from him.

Mr. Leonard Jenkins. Really, I have very little to say, because I have been more of a worker in porcelain, in producing it, than I have in utilizing it. I never made an inlay before last June, and I do not think I have made one hundred in my life, so the work you saw this afternoon is not from a dentist, and not from an expert in porcelain inlay work, but it shows what the average man can do with comparatively little experience, if he will follow the instructions

which Dr. Jenkins has laid down. Of course, I have followed them very closely, and have not gone into different methods such as have been spoken of today, and such as are advocated by other men. I only have tried to master this one way, and demonstrate it. One point I should like to make, and that is, on the question of furnaces.

**The Question of
Furnaces.** The regulating of the heat I consider of great importance in making porcelain inlays. It is very easy to overheat your material and burn the life out of it—lose the natural appearance by overheating.

It makes no difference how long you heat it, but it does make a difference if you give it too much heat. With a gas furnace, you can get intense heat, but you can regulate it to a greater nicety than you can with electricity. In heating an electric furnace, you must heat a large area of clay which surrounds the wires as a muffle, and when you turn your current off, this heated clay still continues to carry the heat for a perceptible length of time—I will say a minute or a minute and a half; whereas with a gas furnace, the heat will be reduced rapidly, because there is only a thin asbestos sheet, which is a poor conductor of heat.

I would like to express my appreciation of this particular method of making porcelain fillings that Dr. Ottolengui has brought out—that of the dove-tailed groove inside of the tooth. I forgot to say that. It is really very clever and something we should study, and something that would be very advantageous if we use porcelain as a filling.

Dr. Van Woert. I want to say a word first about the matrix.
Dr. Ottolengui. When Dr. Van Woert was speaking about the matrix, and explaining that he would put some of the body in the matrix first, and then expect to get his

The Matrix. final and perfect adaptation afterwards, whereas he had not expected to get perfect adaptation at the first, the idea occurred to me that unless he had a perfect adaptation in the first place, whatever body he put in which would adhere to the matrix would render it just that much more difficult to get a perfect adaptation, except as he might leave the edges free and allow it to be burnished to the edges of the cavity. I examined the inlay that he sent around, and became more than ever satisfied that what has been my own experience, was about the average experience—that is, that platinum is not fit to make a matrix with.

Dr. Van Woert said I can do what he cannot do. I say that is not true. I think I had the use of almost the first box of Dr. Jenkins's material that came to this country, and I was very much opposed to its use. I went into it very reluctantly. I was told to get No. 30 gold, and I did so, and found it almost impossible, apparently, to get a matrix that would

give me margins that would be comparable with the margins in my gold work. When I made fillings, perhaps the parts visible to the patient would be fine, and where he could not see, would be anything but fine. I concluded that the method in my hands would be valueless, except to a limited extent—such places as where the platinum matrix could be used, and were very easy; but where there were contortions, I could not do anything at all. I saw Dr. Jenkins operate when he came over, and I told him I could not see how he obtained such beautiful matrices. I declared that I could not do it. He said I ought to be able to do it, and he would do one for me. When he did, I instantly saw that we were not working with the same material, and I realized that whereas I had been failing with *rolled* gold No. 30, he was making the most beautiful successes with gold *foil* No. 30. It is not a question of thickness there. The two are alleged to be of the same thickness, but there is a malleability or pliability in the gold foil that does not exist in the rolled gold, and yet the rolled gold is just as superior to the softest platinum that you can obtain, as the foil is superior to the rolled gold. Now, in this matrix that has been passed around, Dr. Van Woert shows an impression made with platinum, and it is nothing but an impression of the cavity. There is a very little of the metal that extends beyond the cavity margins. With a gold matrix, such as I would make, it would give you all of the approximal surface, and I think you would have a matrix that affords you a guide to build up a contour. It gives you the lines that are left, thus indicating what has been lost.

**Cement No Menace
to Pulp.**

The next point I want to touch on is what Dr. Van Woert and Dr. Rhein said about oxy-phosphate as a destroyer of pulps. Dr. Rhein apologized for answering ahead of me. He did not, but I was sorry to learn from Dr. Van Woert's remarks, that he does not subscribe to ITEMS OF INTEREST. Then I find, what is even worse—that Dr. Rhein, who does subscribe to it, does not read it! I had a letter sent out about two years ago, to about fifty men around the country, and they gave their views on the possibility of destruction of pulps from oxy-phosphate fillings. Those articles have been referred to by other writers as finally settling the question that there is nothing in oxy-phosphate *per se* that would be inimical to a pulp.

Dr. Rhein.

I would say it is a very good conductor.

Dr. Ottolengui.

That is what we come to. It is not any ingredient in the oxy-phosphate that does the damage. It is the old teaching, to try to leave a layer of infected dentine, sooner than expose a pulp. Now, I never have been able to get out of my mind one of Dr. Leon Williams's illustrations—a

cavity that was most beautifully cleaned out mechanically, but there was still a line of dentine that was carious. It is that which destroys the pulp and it has been aided by the fact that the oxy-phosphate, like amalgam or gold, is an exceedingly good conductor of heat. The less of it you have, of course, the less chance there is for conductivity. How is the heat to be conducted through the little thin cement lining? There is so little of it, and it is insulated from the heat by the non-conducting porcelain.

**Recurrence
of Caries.**

I wish to say a word about the recurrence of decay. I have had the honor of seeing a number of Dr. Jenkins's patients, who, needing small services, have passed through my hands. I have seen many of his old glass fillings, and have been astonished to find those fillings of the old German material—like ground glass—with no decay about them.

Two years ago, with the body of Dr. Jenkins in use at that time, I filled a central incisor standing alone in the mouth, where a denture was worn. There was a cavity not only involving the corner, but there was another cavity up near the border. I connected the two. On the distal surface there was an extensive cavity, which did not show on the front, and I filled it with gold with the best of my skill. Here we have cavities filled by the same man, in the same week, one with gold and one with porcelain. A curious thing happened. The stress of mastication caused a fracture of the enamel, and the patient's attention was called to it by feeling it rough with the tongue. I found recently that I could put an explorer point in on one side of the gold filling, and on the porcelain filling on the other side. Both of these cavities were the result of the fracture. I could not get my explorer very far up along the porcelain filling, although to the eye it seemed larger. It went sufficiently far in the gold filling to make me think it would be wiser to repair it. As I drilled, I met more and more caries, until I became satisfied that the only thing to be done was to remove the entire filling, which I did, and found that considerable caries had proceeded under the gold filling, through this little aperture. I made a close scrutiny of the other and could not find any there. It was as white and clean as could be; therefore I have replaced the gold with porcelain, and have done nothing with the inaccuracy of the porcelain on the other side. I have the patient under constant observation, and I wish to see whether caries will enter that little crevice.

**Advantage of
Gas Furnace.**

I thought Mr. Jenkins would tell you more of the advantage of the gas furnace in this work. Dr. Rhein has said that with a little experience you can gauge with nicety the melting point of this

material. In my hands I find it a safe course in the first, second, third or fourth baking to not carry it to the utmost heat. In that way, we always feel we are safe, though a little underbaked. When your filling is fully formed, you can get a beautiful finish and color by raising the heat to full fusing point. I can see the glaze coming as I want it. Mr. Jenkins pointed out the fact that after the electric furnace is heated up, it remains so, whereas the other is a wide open muffle. I think it is a great advantage to put the filling each time into a moderately cool oven; that enables you to have not too rapid a rise of temperature, or scattering of the bubbles, and porosity.

Boston and Tufts Dental Alumni Association.

Discussion of paper on "Construction and Availability of Porcelain Fillings," by R. Ottolengui, M.D.S., of New York, read before the Boston and Tufts Dental Alumni Association, December 11, 1901.

Some dentists do not like to use porcelain back of the six anterior teeth; they use gold, amalgam, cement or gutta-percha, but porcelain has its uses here as well. I have now a case in which the tooth had been filled with gold a number of times, but decay recurred at the cervical wall and consequently the filling came out. I cannot recall a case where decay has recurred at the margin of a porcelain filling. Sometimes a porcelain filling will drop out and you will find that the cement still adheres to the wall of the cavity. I have used Ash's low fusing body, which fuses at about the same temperature as Dr. Jenkins's. I have used the Consolidated's and lately I have used Jenkins's. It flows more smoothly than any of the other materials; it flows right down to the bottom of the matrix. I used Ash's low fusing body much to my sorrow, because it lost color and that, I think, cannot be said of any of the high fusing bodies. Dr. C. P. Wilson, with whom I am associated, some time ago attempted to make an inlay material. After a time he adopted the following formula:

Glass of borax.....	1 oz.
Cream of tartar.....	1 oz.
Silex	4 oz.
Coloring matter.	

This material seems to possess the characteristics of the Jenkins's body, except that it flows at a higher temperature. I have seen a heavy platinum wire that had been imbedded in it bent backward and forward without any cracking of the enamel.

There is another thing to consider, and that is the cement in which we set the inlays. We have not at this time what we ought to have—a transparent, strongly adhesive cement, which would be insoluble in the fluids of the mouth. Some tried liquid celluloid, but it turned brown. I have found nothing equal to the Harvard cement. Some of the cement will dissolve and wash out after a time, but this does no damage, for that around the body of the filling will keep it in.

It seems to me that in using this low fusing porcelain we sometimes get a very good color before set with the cement, but it then turns three or four shades darker, and for this reason we should consider the depth of the cavity in which we are setting the inlay. It is also wise to consider the kind of filling that we are to make. In approximal cavities you will find that the refraction of the rays of light through the porcelain will give it the effect of being dark, and from another point it will seem of a different color. I believe that the time will come when we shall use the porcelain enamel that is used in the making of porcelain teeth. I think that that body is opaque and that the light as reflected gives the same effect as on the natural teeth.

Does Dr. Moffatt think that he could produce with the platinum, which must be used with high fusing bodies, the extensive matrices that I have

shown?

Dr. Moffatt. I hardly think I could.

Dr. W. F. Gilman, Worcester. I would like to ask Dr. Ottolengui what thickness of gold foil he uses.

Dr. Ottolengui. The first difficulty I had in connection with this work was in the use of No. 30 gold. For about six months I thought that porcelain work was the most difficult kind of work; I could not make a matrix. Then Dr. Jenkins came to New York and he said to me: "You are using *rolled* gold and you must use *foil*." By following Dr. Jenkins's advice and using the No. 30 gold *foil* made by the Consolidated Company, I have been able to do more satisfactory work. Get to the bottom of the cavity first and then attend to the sides; the folds can always be pressed against the walls and they can even be doubled. The very best way, where you can, is to press it down against the margins with the finger tip. If there is so much difference between the two kinds of gold, there would be more between gold and

platinum. The fact that platinum can be used without an investment shows that it is more rigid than gold. So far as the investment is concerned, it is a matter of but one or two minutes, and after we have invested the matrix it is much easier than working without an investment. Then, too, you can take advantage of the force of gravity when filling the matrix with the porcelain paste. No. 30 rolled gold is $1/1000$ inch thick. No. 30 gold foil is $1/2000$ inch thick.

Dr. J. W. Forbes, Boston.

What do you use to carry the matrix to place?

Dr. Ottolengui.

No. 30 gold foil is very easily wrinkled. Suppose, for instance, that we have a cervical cavity. With pliers I pass the foil between the teeth and then take a small piece of spunk, very soft, and carry it down so as to wedge the foil against the cervical wall. This holds the matrix and prevents drawing the edge up. It is a little matter and yet it is a very big matter. When the cavity is packed very tightly with spunk I finish with my finger. For the edges themselves I use a burnisher that is like a ball burnisher without the ball.

Dr. Moffatt.

I believe that Dr. Jenkins uses the corrugated gold.

Dr. Ottolengui.

He uses the Consolidated's No. 30 foil. It has a corrugated surface and perhaps for that reason is more plastic.

Dr. J. K. Knight, Boston.

Is this porcelain serviceable for the cutting edges of the incisors when one-fourth of the tooth structure has been destroyed?

Dr. Ottolengui.

I am on both sides of that question. Our decision must depend on the age of the patient and the force with which that patient bites. I happen to have in my care the mouth of a young relative. I found it impossible to save his teeth, for no matter how carefully I packed gold, no matter what I did, that boy would come back to me with clean pieces broken out of the enamel. He bit pieces right out of his teeth. I inserted for him a large porcelain filling and three or four months afterwards he told me that he had chewed a piece out of the porcelain. Upon examination I found that the porcelain was intact, but that he had broken a piece out of his tooth.

I have in mind a patient whose teeth suffer from erosion on their cutting edges, not abrasion, and his teeth are consequently very short. I restored with porcelain the entire cutting edge of a lateral incisor, and he has been wearing that for two years. He is a man who does not use much force in mastication.

I saw a cuspid that had been tipped ten years ago with a piece of porcelain tooth by Dr. Chamberlain, of Rome, Italy, and I could see no trace of cement; yet the porcelain was kept in place and had never come out.

Up to date no one has accused teeth filled with porcelain of being subject to the recurrence of caries, no matter how bad the joint may be. I cannot understand it, but it seems to be a fact. I have a patient for whom two years ago I placed a porcelain filling on one side of an incisor and gold on the other side of the same tooth, within the same week. That left a very weak area between the palatal edges of the two fillings. She afterwards came in and I discovered a slight fracture of the enamel next to the gold filling. I took the gold out and found caries under the gold, but a fracture of the enamel about the porcelain did not show the slightest trace of caries. If caries does not occur around these fillings it is important, for some have felt that with porcelain the edge is the weak part.

Before the introduction of baked inlays, some of our members used pieces of porcelain teeth, ground to fit the cavities as nearly as possible. It might be interesting to hear from some of them upon the question of recurrence of decay around imperfectly fitted inlays.

My experience with these newer methods has not been very extensive, but from the first I did not think that cement was the weak point, because I had seen ground-in porcelain fillings that had stayed in place. Eight years ago I inserted a gold filling for a patient who came to me shortly afterwards saying that the filling had been hit by a milk can and dislodged. As she was about to go away and I was too busy to insert another gold filling just then, I cemented the gold filling into the cavity, explaining to her that it was only temporarily. That filling has remained in perfect condition to this day, so it does not seem to me that the cement is the weak point.

A Member. What furnace does Dr. Ottolengui use?

I use the Jenkins furnace. If you get accustomed to the use of the Jenkins porcelain, you can tell by the eye when the porcelain is fused enough. This material should be heated very gradually and you can do it better with a gas furnace than with any other. Using the Jenkins body you saturate it with alcohol; then burn off the alcohol. As soon as the alcohol is burnt off it is time to apply the heat. The heating is slow and gradual and under control. Another advantage is that the furnace soon cools

below the igniting point of the alcohol, while in an electric furnace the wires keep it warm for a considerable time.

Dr. Geo. H. Payne,
Boston.

Does Dr. Ottolengui ever use a thinner gold for matrix than No. 30?

Dr. Ottolengui.

Yes, I have used No. 4 with good results, but prefer No. 30.

Dr. Payne.

I sometimes take an impression of the cavity and fill it with oxy-phosphate cement from which I can make two or three matrices and fillings, if the first is unsuccessful either in shape or color, without calling the patient to the office for the fitting of another matrix. Besides, the work can be done in the laboratory if one has a competent assistant, thus saving both the dentist's and patient's time.

Dr. W. T. Brigham,
So. Framingham.

The essayist said that he came to us with nothing new, but I think he who has an improvement over something old is just as truly a benefactor as he who has something entirely new.

This is a subject that I am greatly interested in. I have used low fusing bodies and high fusing bodies. I have used both gold and platinum as a matrix. Platinum has the advantage of being easily returned to the cavity and reburnished, and for this reason the rigidity of platinum is sometimes of great advantage. In removing the matrix from the cavity it can be pushed out gently with less danger of disturbing its form than if it is pulled out with the pliers.

There are three essential points in a perfect inlay: the color, the fit and the bake. If any one of these is not perfect the filling is spoiled as a work of art. Much has been said about the deteriorating of the cement holding the inlay. It is, to my mind, like gluing two boards together. If you have a perfect joint there is almost no glue, and the same is true of an inlay, for if you have a perfect fit there is almost no cement to wash out and it is quite indestructible.

In grinding the undercuts to hold an inlay, I have a method which, so far as I know, is original. For instance, if it is an incisor, I make an undercut channel along the under side, running from the cervical wall to the cutting edge; the cement enters this channel and the filling is firmly locked in place. I have never had one come out.

The essayist cites a case in which one cavity was preserved by an inlay, while another filled with gold decayed around the filling; and he trusts that the reason for this will some time be determined. To my mind it was because the inlay was tight, while the gold filling was not. If it is tight gold will preserve a tooth as well as anything else, and perhaps a little better. We know that oxy-phosphate of zinc has slight antiseptic

qualities which are soon lost in open fillings, but which may be retained for a long time under an inlay. This may be one explanation of its preservative qualities. I have had but little experience with furnaces. I am now using a "Turner" gasolene furnace, and it seems to be all that could be desired.

Central Dental Association of Northern New Jersey.

January Meeting.

The regular monthly meeting of the Central Dental Association of Northern New Jersey was held at Davis's Parlors, Newark, N. J., Saturday, January 18th, 1902.

President Gregory called the meeting to order.

President Gregory stated that the Society was fortunate at this meeting in having the presence of several ladies, as guests, as well as visitors and guests from Minnesota, New York and other places. He extended a welcome to the guests and visitors, and in the name of the Society, thanked them for their presence.

The President then introduced Dr. Robert Lincoln Watkins, M. D., of New York, who read the paper published in this issue.

Discussion of Dr. Watkins's Paper.

While I am not an expert in the study of the blood, I have had some experience in sending patients to Dr. Watkins for the purpose of ascertaining from the condition of the blood what diseases existed, and in this way I have come to appreciate the value of his method of blood examination.

The photographs of blood shown this evening are the finest I have ever seen, and by them those of us who are not expert are able to detect the difference between healthy and unhealthy blood.

This method of examining blood has been slowly adopted by the medical profession. The profession has been very loth to believe disease could be detected by examination of the blood, and not until within a few years has there been much reliable work done in this direction. Some ten

years ago I saw the professors in Vienna teach their methods, and for the past six years have followed Dr. Watkins in his work. The old method of making blood examinations was by dried specimens, and it did not matter particularly whether the blood was minutes or days old; it was dried, stained and examined under the microscope and the number of red and white cells was determined and one could get an idea of the different proportions of each, and also the percentage of homoglobin and that was about the extent of the knowledge on this subject at that time. Now we are able to recognize many pathological conditions and to detect remote causes, such as malaria, rheumatism, apoplexy, tuberculosis, syphilis, etc. During inflammatory action the white cells are greatly increased in number. We once thought that the inflammation itself produced this increase. Dr. Watkins has told us tonight that where there is an inflammatory condition the number of white cells increases for the purpose of destroying the disease.

The method employed by Dr. Watkins is quite different from that of many others, and it would seem that he is better able to secure an accurate knowledge of the disease of the patient. Dr. Watkins has exhibited much modesty this evening; he has not given himself credit for pointing out these different affections of the blood, nor has he stated that by his own clinical experience in the examination of cases, and following them through their sicknesses, he has been able to prove conclusively that these diseases are manifested in the blood and often long before clinical signs could be observed. This is a matter of great value to us. It enables us to know what disease the patient has, and thus affords us an opportunity to prevent its development.

Dr. Watkins dwelt to considerable extent on the subject of fibrin, stating that various diseases are shown by the different forms of fibrin. This brings up the question of fibrin being a pathological condition. He said that while fibrin is found in healthy blood, it takes different forms in different diseases. The pathological forms are found in rheumatism and apoplexy. Dr. Watkins has been of great assistance to me in my practice, having examined fully three hundred of my patients, thus enabling me to place them under the proper treatment.

By means of a series of photographs taken by Dr. Watkins for me, I have been able to prove that recurrent pyorrhœa alveolaris was due to syphilis. When I find this condition, I place the patient under anti-syphilitic treatment and continue it until all the spores are eliminated. When the local trouble has been corrected by operative means the alveolar process and the gums become healthy and the teeth become firm, remaining so indefinitely.

A Case from Practice. Dr. Watkins showed a photograph of a specimen of blood taken from a patient of mine. This case is one which I think may interest you.

The patient had been operated on several times within the past two years, by eminent general surgeons, who were unable to accomplish a cure. The operations were for necrosis of the lower jaw and were done through the face. It was not until the third operation had been performed that the cause was found to be abscessed teeth, which were then extracted, yet the wound failed to heal. During this period the patient suffered from lockjaw and had generally failed in health. When I saw the patient these symptoms were yet present and in addition to this there was a fistulous opening in the cheek. The bursæ under the tongue was very much enlarged, being about the size of a fig and quite hard. I called the attention of the family physician to this condition and stated that the discharge of these glands into the wound was the cause of the failure of the wound to heal and responsible for the fistula. I operated through the mouth, as is my custom in such cases, and closed the wound in the face at once. A speedy recovery followed. It is now six weeks since my operation—the wound is healed, the glands reduced to their normal size and the health of the patient restored. These glands, I believe, were diseased through the septic influence of the abscessed teeth. The blood examination revealed marked signs of apoplexy and blood poisoning. The patient afterwards told me that all four of her sisters had died of apoplexy and that she expected to follow them in the same way. The patient is now under treatment, which I feel sure will dissolve those clots and so act upon this fibrin that she may live her allotted time.

I suppose you are aware that rheumatism is no longer considered due to uric acid. It is supposed to be due to a germ in the intestines and is found among those who have indigestion and dyspepsia. The remedy is to cure the dyspepsia.

Dr. Chas. S. Meeker.

Then the theory is to stop fermentation?

Dr. Curtis.

Yes.

Dr. G. S. Stockton.

I am very glad indeed of this illustration. I have often wondered why our friends in New York did not drink more water, but I understand it now.
(Laughter.)

There is an old saying, which proves to be true tonight, and which says, "Blood will tell." (Laughter.) I know of an instance of examination of blood being made and the patient was told that within thirty-six hours he would be a dead man. So you see blood tells in a great many ways.

I am glad for another reason that Dr. Watkins has been here to-night, and that is that the members of the C. D. A. have shown a deep interest in the subject, and have listened with rapt attention to every word, showing that we are not just merely pullers or fillers of teeth, but are growing to what we ought to be—a scientific body.

In the line of what Dr. Stockton has said, I want **Dr. Chas. S. Meeker.** to emphasize one point that is pretty well known to the dental fraternity throughout the country, and that is that the Central Dental Association is exceedingly liberal.

This evening's meeting is a starting point in the right direction. It took some two or three months to arrange for it, and I am very glad that Dr. Watkins has been with us.

This is an independent association. There are very few dental associations in the country who have the courage to bring a man before them to demonstrate a theory. We are perfectly independent in that way, and we will give any man who has a theory to demonstrate an opportunity of coming here and doing so. If there is merit in it the world soon knows it, and if there is no value in it the world soon learns that too.

Some ten or twelve years ago I read one day in the *New York Sun* of a man who had made a new discovery concerning H_2O_2 and we had him here one night and everybody called him crazy. Well, he was crazy, and he died in an insane asylum. But that only goes to prove my theory of the independence of this association. If that man had possessed something that was of value to the world we would have brought it out, and I for one am proud that we have asked Dr. Watkins to come here and demonstrate to us what he knows about the blood.

The possibilities of the examination of fresh **Dr. E. C. Leroy.** blood seem almost unlimited, and I would like to ask Dr. Watkins whether the blood that he has examined comes in contact with the air before the examinations are made.

Dr. Robt. L. Watkins. Oh, yes.

If it does come in contact with the air, does not **Dr. Leroy.** the blood possibly undergo some change while exposed to the air, and would it not be an advance in the present practice to adopt some method of extracting the blood from a human being without its coming in contact with the air at all, or of placing it under a covered glass so that it would be exposed to the air for as short a time as possible.

I have very little knowledge of the blood, **Dr. Baker,** although I have seen a good deal of Dr. Watkins's **Orange, N. J.** work, and I can recommend him as being a great assistant to dentists in diagnosing various cases. I

have found his examinations a great help, and heartily approve them. Although he claims his methods are new and not endorsed by many of the medical profession, yet his work seems to prove he is on the right road, and it will be but a short time before the medical profession will recognize that and give him credit for what he has done.

**Dr. Sweetzer,
New York.**

I have seen blood, just as I have seen it to-night, on the screen, and I have seen it under the microscope and can testify to the truthfulness of every thing that has been shown you tonight. While I have never had a case which I have considered required a blood examination, still there are several patients of mine who have been to Dr. Watkins and he has unfolded to them many secrets that I know they considered were entirely their own. I think that Dr. Watkins's paper has demonstrated to a great many here that his work may be of a benefit to very many in the profession.

Dr. Robt. E. Watkins.

I thank the gentlemen very much for their kind discussion of my paper.

Some years ago I went to Paris, and as has happened to many of us perhaps, I got "busted." I was invited by a dentist to a dinner. I went and found a big, tall man with a Prince Albert coat on, a nice looking fellow, sitting opposite me. I did not have much to say, because, as I could not speak French, I hardly knew what to say to them. The gentleman I refer to offered me a cigarette, which I refused, and he said, "I don't think much of a fellow that does not smoke a cigarette." That was all he said, but the next day I received an invitation to go to his office, and he turned out to be the best friend I had over there, in fact he offered to loan me money before I came away. That was Prof. Michaels of Paris.

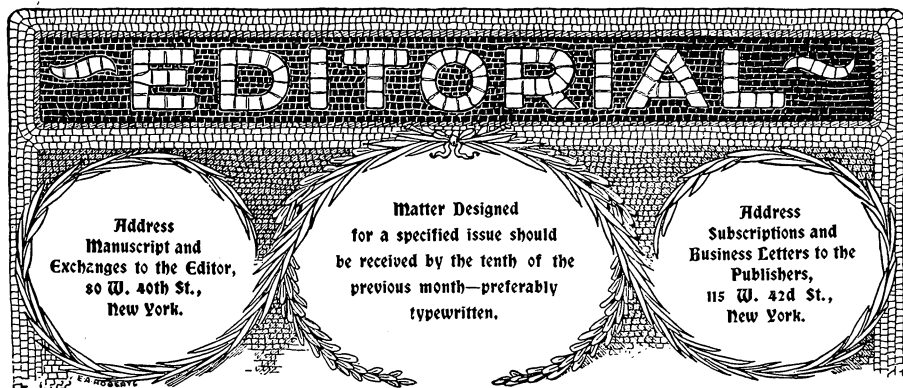
I remember very well his specimens of mouth secretions, and he gave me a copy of his book, but as it is written in French, I have not been able to read much of it.

Concerning Dr. Leroy's questions as to the result of the air coming in contact with the blood, of course the blood changes the moment it is drawn, and at one time, in order to overcome that difficulty, I tried to use the microscope with the X-rays, but it would not work. If that could be done we would probably discover things that we do not find now.

The effect of the air on the blood is peculiar. One reason why tubercular people recover by being in the air so much is because of the effect of the air on the blood. When tubercular matter is exposed to the air it will disappear entirely. It is well known among surgeons that when a person suffering from tuberculous peritonitis is put under an operation, exposing the diseased parts to the air, a recovery usually follows. No

one knows why, but they do know that if the perineum is opened, and there is tuberculosis there, it will get well. They thought at first it was because of the iodoform which was put in, then they thought it was the effect of the light, and then of the air. The conclusion now is that they do not know why, but that it does get well. The air has that effect on tubercular matter in the blood, and I think the same principle will apply to consumptives who go to the mountains to recuperate and get well.





Dental Drones.

In the *Standard Dictionary* the definition of "drone" reads as follows: "The male of the honey bee. It gathers no honey, and is supported by the neuters. Hence, one who lives by the labor, or help of others." Have we any drones in the dental profession? Let us inquire.

No one may engage in dentistry without first acquiring at least so much knowledge as is requisite to practice. Thus at the outset, a stated share of labor is obligatory even upon the future drone. He must study in order to learn that which is already known, yet it is noteworthy that this knowledge which is requisite in order that he may practice has been previously garnered by his predecessors, so that but for the devoted work of other men it could not have been accessible and the candidate must have been forced into other fields.

Dental education is obtained by a regular system of schooling and the labor of the teacher is paid for by the fees demanded. The fact is thus stated in order to point the moral that the money repays the teacher, but in no way cancels the student's obligation to those who stored up and recorded the knowledge, which enables him to earn his livelihood. The one way in which this latter obligation may be met is through an earnest

endeavor to advance the interest of the profession, to aid in its progress, to investigate its intricacies and if possible to solve its problems, and having found such solution to freely bestow the discovered knowledge upon others of the fraternity.

There be some, however, who do not grasp this idea, who do not recognize this responsibility. If by chance one of these should find some easier or better method than those already known, his first thought is not, "How can I best help others with this new knowledge?" but rather, "How may I best help myself by making others pay me for this new knowledge?" Yet even such a man, with his keen appreciation of the pecuniary value that may be set upon a dental method, is not entirely willing to live self-reliant; to limit his methods of practice to what he had been taught prior to graduation, or to others of his own devising. He well understands that it is to his individual advantage to become familiar with the newer methods constantly brought to the front in dentistry. How is such knowledge originated? How is it disseminated? How is it appropriated by the drones?

The Member.

The Society.

The Journal.

In the dental profession, as in other callings, fraternal feeling, the desire of man for the companionship of man and the love of his chosen work, have fostered the formation of societies. We have now practically a State Society in all the States; there are one or more societies in all large cities, and in less densely populated districts there are local associations whose members come from many towns and cities. While the fraternal handclasp and social commingling is a conspicuous feature of all our meetings, the primary object of dental associations is the advancement of the science and art which constitute our daily work. The customary method is that one or more men should be invited to prepare and read essays, which are then discussed by those present, thus assuring an interchange of ideas. Whilst not always the realization, it is at least the expectation that the essayist should present something new. Indeed it is his duty so to do. If the entire subject be not novel, if it be old, at least there should be some feature of the essay to awaken a new idea, a new line of thought; something that may arouse a discussion that will disseminate a greater degree of knowledge. In brief, the object is

to discover newer and better methods. And this end is attained through the dental societies. Newer and better methods are discovered.

The next step is to record the advance by publication, and here we make a statement perhaps well recognized, but still worthy of note in this discussion. Without dental societies, there would be no dental journals, no current literature. It is the invitation of the society, which is the incentive of the writer, and it is the proceedings before societies, the papers read and the discussions thereof, which furnish the journals with the greater part of their matter. It is true that many articles are specially prepared for and first published in the dental journals. ITEMS OF INTEREST has made a feature of such matter, with the idea of encouraging more men to write and to become skilful in preparing matter for publication. Nevertheless, it can not be denied that the greatest achievements in dentistry have been usually given to the world by first announcement at a society meeting. Therefore, it is but just to declare that it is the dental society which is the foundation and corner stone of dental progress.

The writer having written, the society having
The Drone. afforded him opportunity to present his discoveries,
 and the magazine having published his newer and
better methods to the world, the drone hesitates not to appropriate the advantages at the minimum of cost to himself, the subscription to the magazine, if indeed he be not mean enough to borrow the book.

It is by no means uncommon to hear men say, "Why should I go to society meetings? I can read the stuff in the journals." This indicates a woeful lack of the moral sense and even of ordinary perspicacity. In the first place it is not true as a statement. All that is heard in a dental meeting may not be read in the magazine. There is much that transpires which does not reach publication. But that is an aspect foreign to the present contention. The point to be made in simple English is this: As has been pointed out, the progress in dentistry, and the journalism of dentistry, are fundamentally dependent upon the dental societies. What is accomplished by the societies requires an expenditure of hard cash. With larger treasuries, which would accrue from a greater membership, much more could be attained. The man, therefore, who does not support this work by joining at least one society, but who appropriates all the newer ideas and methods that are brought forth, is a drone. Is he strictly honest? Let each formulate his own reply.



THE EDITOR'S CORNER

With malice
toward none,
with charity
for all

Questions will be answered in this department, provided the answers would be of general interest. After publication our readers are cordially invited to make further reply, criticism or comment.



It has often been said that dentists are chary about recording their failures. It may sometimes occur, however, that a failure in a first effort compels the operator to seek new means of accomplishing his purpose, and if in the end he achieves success, it becomes of interest that he should report the method by which the result was attained.

Mastering Difficult Lower Impressions.

In a recent instance, the patient was an elderly lady who had remaining the eight lower anterior teeth present, and de-

sired a gold plate to carry the posterior teeth.

An examination of the mouth showed considerable fatty tissue lying under the tongue, which had an uncontrollable tendency to roll over and cover the ridge. Three efforts with plaster of paris failed to obtain an impression, which gave an adequate outline of the ridge on both sides. The procedure was as follows:

Quick setting, hard modelling compound was softened and inserted in the cup in the usual way, the middle fingers of both hands being used to

force soft tissue away from the ridge and then press the modelling material up against it. This was held in the mouth for a considerable time until it seemed safe to remove it, after which the model was made from which metal dies were procured and a gold plate swaged.

When this plate was tried in the mouth, it was discovered that it fitted very accurately along the ridge on both sides of the mouth, but that it did not fit at all against the natural teeth. Studying out this discrepancy, it became evident that while the modelling compound had given a good impression of the ridge on each side, it must have considerably drawn around the teeth in removal. This, however, had occurred so evenly that it was not noticed; moreover, the position of the teeth was such that a modelling compound impression would invariably act in this manner. The fault in the plate was rectified in the following way:

Plaster of paris was mixed quite soft and with a knife placed on the gold plate where it would come into contact with the teeth. The plate and plaster were then carried quickly to place and held firmly with both hands, the forefinger grasping the plate within the mouth, and with the assistance of the thumb under the jaw, the plate was held tightly in position against the ridges until the plaster had set. When this was removed from the mouth, it was treated as though it were an impression and a model poured upon it. New dies were made and the plate swaged once more, after which the adaptation was absolutely accurate.

In reconsidering this case, the conclusion is inevitable that by no other means could so good a fit have been procured as by the various steps accidentally adopted.

In spite of the fact that the peculiar methods of St. Luke's Hospital of Niles, Mich., were fully exposed in *ITEMS OF INTEREST*, November, 1901, that institution is once more casting its bread upon the waters, hoping that it may return after many days with the dollars of deluded dentists. It is rather interesting to record that one of these circulars, which invites the recipient to become a member of its hospital staff, was actually addressed to the editor of this magazine. That a large number of these circulars have gone out broadcast is evident from the fact that our readers are sending us these interesting bits of literature by every mail. Considering all that we have published about this concern, including the fact that they are using the names of reputable men on their letter heads against these men's wishes and without their permission, it would seem that a little activity on the part of the State Dental Society of Michigan might suppress this institution. It would seem that were the attention of the District Attorney of the County called to this matter something might be done.

**St. Luke's Hospital
Again.**

We are asked by a prominent chemical company to call the attention of the profession to the **Substitution of Drugs by Druggists.** growing evil of substitution.

Let any certain article get a reputation and the retailer or supply depot is importuned by the wholesaler to buy some other article represented to be just as good at a less price, on which the wholesaler or supply house will make a better profit than they would on the standard article; increased profit appeals strongly to the retailer as well, and he feels that he is within his rights as long as this particular article is recommended by the firm that supplies him with his drugs; and this inferior product, starting from a general manufacturer, passing through wholesaler and retailer, finally finds its way into the patient's hands.

It would really require but little effort on the part of the profession, for specification would soon stop that practice with any druggist, and the result would be in all ways satisfactory; satisfactory to the manufacturer who suffers not merely a financial loss, but who suffers in reputation, satisfactory to the Doctor or Dentist because he would be able to know and depend on just what certain medicines and remedies would do, and satisfactory to the patient because fewer mistakes and less suffering would ensue.

The reviewer of Dr. Gorgas's "Dental Medicine" calls our attention to an error in publishing his review. In alluding to cocaine, he is made to say that "In five minims of a four per cent. solution, there is one grain of the drug."

This statement is incorrect, for $5 \times 4 = .20 = 2-10 = 1-5$ grain. It should read, "In twenty-five minims of a four per cent. solution there is one grain of the drug; $25 \times 4 = 100 = 1.00 = 1$ grain."





Henry Bliss Noble.

Dr. Henry Bliss Noble, of Washington, D. C., died of heart disease, while riding in a street car on the way to his office, on the morning of March 5th, 1902.

Dr. Noble had long been a sufferer and had frequently complained of feeling ill about the time when preparing to go to his office. On that morning, however, he seemed to be in excellent spirits. It was a stormy morning, and while riding in the car the Doctor seemed to be simply watching the fall of rain and hail; there was nothing in his appearance to indicate that he was ill, and he died without attracting attention. When the conductor discovered that the Doctor had died, he summoned an ambulance, and the body was taken to the Emergency Hospital, where the physicians decided that life had been extinct for several minutes, though the body was still warm when they examined him.

Dr. Henry Bliss Noble was born in Blanford, Mass. He began the study of dentistry with his brother, Lester, March 2nd, 1857, was graduated in dentistry at the Baltimore College of Dental Surgery March 3rd, 1859, and immediately entered upon the practice of dentistry in Washington, D. C. He was a member of the District of Columbia Dental Society, of which he had been twice President, and a member of the District of Columbia Board of Examiners from the date of its organization up to the day of his death. He was also a member of the National Dental Association and an honorary member of several societies.

He was married in Washington, D. C., in 1864, to Miss Henrietta Clitch. Three daughters survive him: Miss Irene, Mrs. Clagett and Mrs. Marshall of Pittsburg, Pa.

Whilst a general practitioner of dentistry, he in a measure made a specialty of orthodontia, and was quite successful in correcting irregularities of the teeth. He was a Special Lecturer in the Baltimore College of Dental Surgery and also in the Dental Department of Columbian University.

He loved his profession and was always enthusiastic and energetic in his efforts to promote its advancement. He rarely missed a meeting

of his home society and greatly enjoyed taking part in discussions. Notwithstanding his age, he was young in years, and in his devotion to his calling considered no sacrifice of time and labor too great. Very loyal to his friends, he was loved by them and respected as a citizen. He was faithful to his church, benevolent and kindly, with malice towards none, with charity for all.

Only a week before his death, he sat as an honored guest at the head table at the annual banquet of the Central Dental Association of Northern New Jersey, and while his loss will most keenly be felt in the District of Columbia, he will be mourned in all the large cities of the East, where his face had been familiar by attendance at many meetings.

Resolutions, Passed by the Board of Dental Examiners for the District of Columbia, on the Death of Dr. Noble.

At a special meeting called for the purpose, the Board of Dental Examiners for the District of Columbia, by a unanimous rising vote, adopted the following resolutions:

Whereas, Death has suddenly bereaved us of our most beloved and distinguished associate, Doctor Henry Bliss Noble.

Whereas, In his relations with us he was the soul of honor, while always kind, genial, generous and helpful—a man of unselfish disposition who ever labored to advance the best interests of all.

Resolved, That this Board cherishing his memory gratefully and keenly feeling his loss desire to spread this expression of their appreciation upon their records.

Resolved, That a copy of these resolutions be transmitted to his family and the dental journals.

M. F. FINLEY,
C. W. APPLER,
H. J. ALLEN,
J. H. LONDON.

Official Copy, H. J. Allen, Pres.

Dr. Burt Barry.

At the regular meeting of the St. Louis Dental Society held on March 4th, 1902, the following report was read and adopted:

Dr. Burt Barry was born July 26th, 1871, his parents, Mr. and Mrs. L. T. Barry, being old settlers in Brown County, and residing there at

the time of his birth. His early education was in the public schools at home and in the military schools at Salina and Orchard Lake.

In 1895 he entered the Missouri Dental College and graduated in the class of 1898. Soon after graduating he opened an office in St. Louis. For the first year he was associated with Dr. W. W. Gardner and the remainder of the time with Dr. G. W. Loesch. During the summer of 1901 he had a severe illness from which he never fully recovered. Later he went to Europe; there he remained long enough to reach the belief that the London climate was best for his health, and decided to live there at least two years. Making arrangements to that effect, he came back to this country to purchase an American dental outfit for an English dentist with whom he expected to associate, anticipating making the move in March. On his return he spent a short time in his St. Louis office, then went to New York City, and on January 17th, 1902, was married in Philadelphia to Miss Marie Peterman, a very much esteemed lady of that city. Then he went to Mt. Sterling to visit his parents and friends.

There on the morning of February 15th, he was found dead in his bed, having died without making a struggle to warn his family. His wife was in Philadelphia at the time of his death, but reached Mt. Sterling in time to attend the funeral. His remains were interred in the cemetery on the outskirts of Mt. Sterling on February 18th, 1902. His parents, one brother and three sisters survive him.


Dr. Barry soon after graduating became a member of our society and just before his severe illness was preparing a paper on Dental Materia Medica to be read before the society.

In college "Burt," as the boys called him, was studious and industrious, aiming to make the best of his opportunities, keeping up his studious habits after entering practice.

Dr. Barry was prominent in the Jefferson Club during its early history. Personally he was affable, courteous and gentlemanly always, and made friends readily. He was fond of athletics, in several branches of which he was skilled.

JOHN G. HARPER,
F. F. FLETCHER,
O. H. MANHARD,
Committee.

CORRESPONDENCE



Tin and Gold.

Editor ITEMS OF INTEREST:

DEAR DOCTOR:—Since reading the very good article on “Tin,” by Dr. Shumway, page 181, March ITEMS, I have felt something as I used to occasionally in times gone by when comments flowed fast and free from my *scribendo* pen, but now I merely want you to know how utterly Dr. F. T. Clark misunderstood the original using of tin under gold, and how natural, but none the less erroneous (so far as the design of that practice was concerned) is the possibility that Dr. Clark’s idea might not give it its full due.

The first tin and gold fillings, which I remember, were made in the early '40's ('44 or so) and which, I was then told by my father, was following a practice which had been commenced in the '30's, with the view to utilize the tooth conserving quality of the tin in connection with the resisting quality of the gold. There was, in those days, very little, if any, thought of cheapening dental work, but it had been noted that tin prevented recurrence of decay better than gold, but that it also wore out from attrition, and thus it was that the idea was given of filling the cup-like cavity in the tin with gold, and yet leaving in the tin to continue its tooth-saving work.

This, of course, promptly inaugurated the work of lining with tin and covering with gold, and I well remember the instructions given me to “be sure that the patients should know of the tin under the gold, and the object of its placing, as already cases had occurred in which, in some events of failure, the discovery of the tin by some other dentists had been sufficient to occasion the denunciation of such hidden use of tin as a palpable attempt at fraud.”

It was this knowledge of the truth of the tin lining that suggested to me the lining of cavities with oxychloride of zinc, which, tried and taught in 1862, was the first of the zinc chloride lining.

In regard to Dr. F. T. Clark, I must say that his rolled cylinders of gold gave me a great setback rather than any advance in the use of soft gold, for those of us who were following the teachings of Dr. Thomas W. Evans in contouring soon found that by inrolled pellets alone this work

could be properly done; while those accustomed to rope, pellets, ribbons and tacks could do far better work, in far less time, than with the Clark cylinders. Truly yours,

J. FOSTER FLAGG.

Swarthmore, Pa., March 15, 1902.

Degrees for Practitioners.

Editor ITEMS OF INTEREST:

DEAR DOCTOR:—Permit me to reply to your editorial comments on the plan suggested by me in regard to giving advanced standing to undergraduate practitioners.

There is no reason why, as suggested by you, that examination should be without remuneration to examining board, or that amount of railroad fare necessary in order to take examination should deter those interested from taking it.

If you will consider that the persons for whom it is suggested are not impecunious youths, but practitioners, to whom time is the great consideration, and that the expense of three college courses which would be saved to such as were permitted to enter the fourth year class would be at least from \$1,000.00 to \$2,000.00 in cash, besides three terms of valuable time, you can see that even the extreme case which you cite of crossing the entire continent and the payment of, say \$25.00, for examination, would be trifling in comparison to the amount saved.

I agree with you that it *ought* to be the case that entrance examinations might safely be entrusted to the individual college, but, when it is considered that a large number of the colleges are entrusted to the management of persons who are financially interested in the college fees, and when we take into consideration the struggle of competition for scholars between the various colleges, there might be just the slightest suspicion that some might be advanced to a grade to which they were not entitled for the sake of the college fees.

Indeed, when, as the records of almost any of the examining boards (in States which require both graduation and examination as a prerequisite for practice) will show, men are bearing the degree of D.D.S. who have hardly the rudiments of a good English education, notwithstanding the fact that entrance examinations have been required for years past, there ought not to be any question about the safeguarding of the interests of the Profession and of the honest colleges, and it seems to me that the plan suggested would be the only one which could be free from criticism and absolutely fair to all parties concerned,

Very truly yours,

PRICE CHEANEY.

Dallas, Tex., March 12, 1902.



National Society Meetings.

- National Dental Association, Niagara Falls, N. Y., Aug. 5, 6, 7.
National Association of Dental Examiners, Niagara Falls, N. Y.,
Aug. 1.
National Association of Dental Faculties, Niagara Falls, N. Y.,
July 31.
American Society of Orthodontists, Philadelphia, Pa., Oct. 8, 9, 10.
-

State Society Meetings.

- California State Dental Association, San Francisco, June 10.
Colorado State Dental Association, Colorado Springs, June 17, 18, 19.
Connecticut State Dental Association, Hartford, May 20, 21.
Delaware State Dental Society, Wilmington, July 2.
District of Columbia Dental Society, Washington, Dec. 16.
Florida State Dental Society, Daytona Beach, Daytona, May 28.
Georgia State Dental Society, Macon, June 10.
Illinois State Dental Society, Springfield, May 13, 14, 15.
Indiana State Dental Association, Lake Maxinkuckee, June 24, 25, 26.
Iowa State Dental Society, Des Moines, May 6, 7, 8, 9.
Kansas State Dental Association, Hutchinson, May 7, 8, 9.
Maine Dental Society, Camden, July 15, 16, 17.
Massachusetts State Dental Society, Boston, June 4, 5.
Michigan Dental Association, Grand Rapids, June.
Minnesota State Dental Association, St. Paul.
Mississippi Dental Association, Biloxi, May 20, 21, 22.
Missouri State Dental Association, Jefferson City, May 21, 22, 23.
Nebraska State Dental Society, Lincoln, May 20.
New Jersey State Dental Society, Asbury Park, July 16, 17, 18.
New York State Dental Society, Albany, May 14, 15.

North Carolina Dental Society, Raleigh, June 19, 20, 21.
Ohio State Dental Society, Columbus, Dec. 2, 3, 4.
Pennsylvania State Dental Society, Bedford Springs, July 8, 9, 10.
Rhode Island Dental Society, July 8.
South Carolina State Dental Association, Charleston, May 13, 14, 15.
Tennessee Dental Association, Monteagle, July 1.
Texas State Dental Association, Waco, May 13, 14, 15.
Vermont State Dental Society, Rutland, March 19, 20, 21.
Washington State Dental Society, Tacoma, May 22, 23, 24.
Wisconsin State Dental Society, Milwaukee, July 15, 16, 17.

West Virginia State Board of Dental Examiners.

The West Virginia State Board of Dental Examiners will meet at Martinsburg May 21st, 22nd and 23rd, for the examination of candidates. The examination will be in writing and will include anatomy, physiology, chemistry, bacteriology, histology, pathology, metallurgy, dental medicine, surgery, operative and prosthetic dentistry, together with an operation in the mouth. All applications, together with the fee (\$10.00), should be sent in ten days before examination.

All applicants are required to furnish their own materials and instruments.

J. F. BUTTS, Sec'y.

Charleston, W. Va.

Pennsylvania Board of Dental Examiners.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg May 6th-9th. For papers and information apply to Hon. James W. Latta, Secretary Dental Council, Harrisburg, Pa.

G. W. KLUMP, Sec'y.

Williamsport, Pa.

New Jersey State Board of Registration and Examination.

The New Jersey State Board of Registration and Examination in Dentistry will hold their next examination on the following dates: Monday, July 7th, Tuesday, July 8th, Wednesday, July 9th, at the office of the Secretary, J. Allen Osmun, 588 Broad St., Newark, N. J.

All applicants for examination must have their application in two weeks prior to the examination.

J. ALLEN OSMUN, Sec'y.

588 Broad St., Newark, N. J.

Oklahoma Board of Dental Examiners.

There will be a meeting of the Oklahoma Board of Dental Examiners held in Guthrie May 5th and 6th, for the purpose of examining candidates for license.

A. C. HIXON, Sec'y.

Guthrie, Okla.

Maryland State Board of Dental Examiners.

The Maryland State Board of Dental Examiners will meet for the examination of candidates for certificates to practice dentistry on Monday and Tuesday, May 5th and 6th, 1902, at the dental department of the Baltimore Medical College, commencing at 9 a. m.

Application blanks and all information will be furnished by the undersigned.

F. F. DREW, D. D. S., Sec'y.

701 N. Howard St., Baltimore, Md.

Virginia State Board of Dental Examiners.

The next meeting of the Virginia State Board of Dental Examiners will be held in Richmond, Va., June 10th.

R. H. WALKER, Sec'y.

Norfolk, Va.

Wisconsin State Board of Dental Examiners.

A meeting of the Wisconsin State Board of Dental Examiners, for the examination of candidates, will be held in Madison, in the State Capitol, beginning Tuesday, May 13th, at 9 a. m.

Candidates must come prepared with rubber dam, gold and instruments to demonstrate their ability in operative dentistry.

H. L. BANZHAF, Sec'y.

Manitowoc, Wis.

Sixth District Dental Society of the State of New York.

The thirty-fourth annual meeting of the Sixth District Dental Society of the State of New York will be held on May 8th and 9th at Hotel Bennett, Binghamton, N. Y.

FREDERIC W. McCALL, Sec'y.

Binghamton, N. Y.

Missouri State Dental Association.

The thirty-eighth annual session of the Missouri State Dental Association will convene at Jefferson City, Mo., May 21st, 22nd and 23rd.

The literary programme will be held in the Legislative Hall, and the Clinics, beginning at 10 a. m. The first day's meeting will be held at the Penitentiary, where an abundance of Clinical material can be had.

Railroad and hotel rates have been secured.

The following is a partial list of the programme:

Addresses and Essays.

1. Burton Lee Thorpe, St. Louis—President's Annual Address.
2. William Everett Griswold, New York—The Griswold system of removable bridge-work.
3. Frederick Brown Moorhead, Chicago—Alveolar abscess, its *sequelae* and surgical treatment.
4. D. R. Stubblefield, Nashville, Tenn.—Metallurgy.
5. J. D. Patterson, Kansas City—Etiology of Dental Disease.
6. D. F. Luckey, D. V. S., Columbia, Missouri State Board of Agriculture—Comparative Anatomy of the Teeth.
7. J. Robert Megraw, Fayette—Dental Prescriptions.
8. Millard Lewis Lipscomb, A. M., Missouri State University, Columbia—The practical application of electricity in surgery and kindred subjects.
9. S. C. A. Rubey, Clinton—Some State Board questions and the answers they receive.
10. James W. Hull, Kansas City—Conservatism in Dentistry.
11. Herman Prinz, St. Louis—Some of the newer dental remedies.
12. Charles Gilbert Chaddock, M. D., St. Louis—Neurology.
13. W. W. Flora, Carthage—Use and abuse of crown and bridge-work.
14. Otto J. Fruth, St. Louis—Report of Committee on New Inventions and Appliances.
15. H. S. Vaughn, Kansas City—Orthodontia.

Clinics.

M. C. Marshall, St. Louis, Supervisor.

1. Edward G. Snodgrass, Keokuk—Step filling using Watts crystal gold.
2. Frederick Brown Moorhead, Chicago—Surgical Treatment of Alveolar Abscess.

3. William Everett Griswold, New York—The Griswold System of removable bridge-work, constructing a practical case in the mouth.

4. R. C. Brophy, Chicago—Porcelain work, baking with gasoline and gas furnaces.

5. B. Q. Stevens, Hannibal Table Clinic—My method of root-filling with gutta percha and wood points and taking impressions of enlarged or undeveloped root canals.

6. A. J. Prosser, St. Louis—Methods of filling with cohesive and non-cohesive gold and tin foils.

7. F. M. Fulkerson, Sedalia—Immediate and painless pulp extirpation in anterior teeth.

8. R. H. Mace, St. Louis—The use of gold inlays in deciduous and frail teeth.

9. Herbert P. Neeper, Canton; Edward G. Snodgrass, Keokuk—Mounting Logan Crown with Cap.

10. John G. Harper, St. Louis—Table Clinic. "Some Odds and Ends."

11. F. B. Jahr, Kansas City—Preparing Cavities in Porcelain Teeth.

12. J. Robert Megraw, Fayette—Treatment of alveolar abscess with fistulous opening and immediate root-filling.

13. M. R. Windhorst, St. Louis—Gold fillings.

14. F. H. Acholpohl, St. Charles—The Use of Teagues Cavity Cap Disks.

15. J. H. Kennerly, St. Louis—Taking impressions of the mouth.

16. J. Denzil Bowles, Tipton—New Treatment of Epules Tumors, Oral Ulcers, Etc.

17. D. G. H. LeCron, St. Louis—Porcelain Inlays.

18. A. J. Prosser, St. Louis—Gold inlay, swaged and burnished.

19. W. F. A. Schultz, St. Louis—Operation for Necrosis.

20. R. R. Vaughn, St. Louis—Demonstrating use of Archite Cement.

21. George H. Mathæ, St. Louis—Extracting with Nitrous Oxide Gas, demonstrating new universal lower forcep.

22. A. F. Strange, St. Louis—Obturator for Cleft Palate.

23. R. N. LeCron, St. Louis—Construction of Porcelain Bridge.

24. V. H. Frederick, St. Louis—Bridge-work with Removable Facings.

25. J. S. Letord, Kansas City—Demonstrating a new Rheostat for 110-volt alternating current.

26. C. D. Lukens, St. Louis—Orthodontia.

27. F. F. Fletcher, St. Louis—Something.

28. James W. Hull, Kansas City—Immediate and painless checking of hemorrhage.

29. George H. Gibson, St. Louis—Cleansing a set of teeth.
30. Orme H. Manhard, St. Louis—A method of retaining loose teeth with a splint.
31. H. S. Vaughn, Kansas City—Demonstrate the Jackson Crib System for Irregularities.
32. W. L. Reed, Mexico—Articulated Natural Teeth to demonstrate cavity preparation.
33. Henry B. Purl, Kirksville—Black's method of step cavity preparation.
34. W. W. Flora, Carthage—Richmond Crown.
35. Herman Prinz, St. Louis—Demonstrations of some of the newer dental remedies.
36. L. A. Young, St. Louis—Adjusting rubber dam and filling root canals, demonstrating new rubber dam holder and aseptic broaches.
37. James F. Austin, St. Louis—Cavity preparation and finishing alloy fillings.

Dental Commissioners of Connecticut.

The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford, on Wednesday, Thursday and Friday, May 28th, 29th and 30th, 1902, respectively, to examine applicants for license to practice dentistry, and for the transaction of any other proper business.

The practical examination in operative and prosthetic dentistry will be held Wednesday, May 28th, at 9 a. m., in Putnam Phalanx Armory, corner of Haynes and Pearl Streets.

The written theoretic examination will be held Thursday and Friday, May 29th and 30th, at the Capitol.

All applicants should apply to the Recorder for proper blanks, and for the revised rules for conducting the examinations.

Application blanks must be carefully filled in and sworn to, and with fee, twenty-five dollars (\$25.00), filed with the Recorder on or before May 21st, 1902.

By direction of the Dental Commissioners.

J. TENNEY BARKER, Recorder.

8 North Main St., Wallingford, March 1st, 1902.

Examination hours: 9 a. m. to 1 p. m. 2 p. m. to 6 p. m. Practical prosthetic, 9 a. m. Practical operative, 10 a. m.

Susquehanna Dental Society.

The Committee on Exhibits of the Susquehanna Dental Society desire to announce that at the fifty-fourth annual meeting of the Susquehanna Dental Society to be held at Scranton, May 14th, 15th and 16th, the Committee anticipate holding the meeting in sufficiently large room that the Exhibits and Sessions can be under the same roof, convenient to hotels and depots.

Every advantage is here offered for a great display, with all conveniences necessary for such an exhibition. This will undoubtedly be a big year and especially so from the Exhibit standpoint, as many exhibitors have already written to secure space generally selected by them. A great inducement offered to all Exhibitors is the fact that at our last meeting in Wilkes-Barre over one hundred Dentists registered at the hotel. The names of the Exhibitors selecting space prior to the programme going to press will be mentioned therein, together with the nature of their display.

It is earnestly requested that those desiring space communicate with Chairman at an early date.

C. C. LAUBACH, D. D. S.,
Executive Chair of Committee, Scranton, Pa.

DR. C. C. LAUBACH,

DR. D. B. WILLIAMS, Wilkes-Barre,

DR. W. R. FORDHAM,

Committee.

Washington State Dental Society.

The Washington State Dental Society will hold its fifteenth annual meeting at Tacoma, Wash., on Thursday, Friday and Saturday, May 22nd, 23rd and 24th, 1902.

A large attendance is expected and an exceptionally interesting programme is promised. Several prominent men from outside the State will be in attendance and take part. All members of the profession are cordially invited to attend.

Seattle, Wash.

FRANK I. SHAW, Sec'y.

Southern Wisconsin Dental Association.

The eighth annual meeting of the Southern Wisconsin Dental Association will be held in Madison, Wis., on May 14th, 15th and 16th. A cordial invitation is extended to members of the profession.

G. W. SNYDER, Pres.

J. H. REED, Sec'y.

Lancaster, Wis.

South Carolina State Dental Association and State Board of Dental Examiners.

The thirty-second annual meeting of the South Carolina State Dental Association and State Board of Dental Examiners will be held in Charleston May 13th. All dentists residing in the State are invited to be present. Visiting dentists from other States will be cordially welcome. This will be an excellent opportunity to attend the Exposition and visit the historic "City by the Sea" and spend a few days of pleasure with the dentists of the Old Palmetto State.

J. EDWIN BOOZER, Cor. Sec'y.

Columbia, S. C.

New Jersey State Dental Society.

The following are the different committees of the New Jersey State Dental Society for 1902-1903:

Committees of the N. J. S. D. S. Essay Committee—A. Irwin, Chairman, Camden; C. S. Stockton, Newark; Mary A. Morrison, Salem.

Clinic Committee—W. W. Hawke, Chairman, Flemington; Charles H. Dilts, Trenton; M. R. Brinkman, Hackensack; W. E. Stelle, Plainfield; Tracy H. Dawes, Somerville.

Exhibit Committee—F. L. Hindle, Chairman, New Brunswick; C. S. Stockton, Newark; T. Star Dunning, Paterson; H. Iredell, New Brunswick; P. G. Voegtlen, Madison.

Committee on Art and Invention—W. G. Chase, Chairman, Philadelphia; J. G. Halsey, Swedesboro; W. F. Farr, Hackensack.

Legislative Committee—B. F. Luckey, Chairman, Paterson; J. A. Waas, Hammonton; H. A. Hull, New Brunswick; A. R. Eaton, Elizabeth; J. S. Vinson, Newark; S. B. Johnson, Dover; W. E. Truex, Freehold; M. R. Brinkman, Hackensack; W. S. Leaming, Cape May; Charles Tuttle, Camden; T. D. VanSickle, Princeton; S. C. Slade, Vineland; F. C. Barlow, Jersey City; W. A. Jacquette, Salem; J. D. Haggerty, Deckertown; G. M. Holden, Hackettstown; J. G. Halsey, Swedesboro; A. S. Bailey, Lakewood; C. M. Henry, Bernardsville; Charles Harker, Mt. Holly; W. W. Hawke, Flemington.

Prosthetic Dentistry Committee—F. C. Barlow, Chairman, Jersey City; H. A. Hull, New Brunswick; C. W. F. Holbrook, Newark.

Materia Medica Committee—W. H. Mitchell, Chairman, Bayonne; P. G. Voegtlen, Madison.

Dental Literature Committee—R. M. Sanger, Chairman, East Orange; F. W. Stevens, Newark; G. C. Brown, Elizabeth.

Programme and Printing Committee—Charles A. Meeker, Newark.

Contracts and Accommodations Committee—Charles A. Meeker, Newark.

Clinical Conference Committee—I. N. Vandewater, Chairman, Madison; Oscar E. Peck, Bridgeton; F. Clawson, Plainfield; G. I. Crook, Toms River; F. J. Maynard, Englewood; T. F. Gifford, Woodboro; W. C. C. Philpot, Elizabeth; W. Moore Gould, Newark; Thomas Moore, Paterson.

Press Committee—J. Allen Osmun, Newark.

Entertainment Committee—J. L. Crater, Chairman, Orange; W. P. Richards, Orange.

Registration Committee—Tracy H. Dawes, Chairman, Somerville; Charles H. Dilts, Trenton; P. G. Voegtlen, Madison; J. F. Lummis, Bridgeton; F. W. Stevens, Newark; T. N. Bradfield, Newark.

Committee on Prosecution—Atlantic County, J. A. Waas, Hammon-ton; Bergen County, C. W. Heydon, Jr., Hackensack; Burlington County, Charles Harker, Mt. Holly; Cape May County, W. S. Leaming, Cape May; Camden County, J. E. Duffield, Camden; Cumberland County, S. C. Slade, Vineland; Essex County, F. G. Gregory, Newark; Gloucester County, J. G. Halsey, Swedesboro; Hudson County, C. W. F. Hob-litzell, Jersey City; Hunterdon County, W. W. Hawke, Flemington; Mercer County, T. D. Van Sickle, Princeton; Middlesex County, Harvey Iredell, New Brunswick; Monmouth County, H. S. Taylor, Asbury Park; Morris County, S. B. Johnson, Dover; Ocean County, A. S. Bailey, Lakewood; Passaic County, B. F. Luckey, Paterson; Salem County, W. A. Jacquette, Salem; Somerset County, C. M. Henry, Bernardsville; Sussex County, J. D. Haggerty, Deckertown; Union County, W. Woolsey, Elizabeth; Warren County, G. M. Holden, Hackettstown.

Reading Dental Society.

At the January meeting of the Reading Dental Society, the following officers were elected for 1902:

President, E. W. Bohn; vice-president, G. S. Schlegel; treasurer, Elwood Tate, secretary, C. R. Scholl.

Executive Committee: S. E. Tate, W. D. De Long, H. L. Cleaver.

The fourth annual banquet will be held Feb. 6th. Prof. T. C. Stell-fagen to be guest of honor and essayist C. R. SCHOLL, Sec'y.

Reading, Pa.

St. Louis Dental Society.**Programme—1902.**

May 6th.—R. J. Terry, M. D., Professor of Anatomy, Washington University.—Subject to be announced. Discussion opened by: Dr. E. H. Angle, Dr. L. A. Young. Dr. B. L. Thorpe.—“Our State Law and Some Proposed Amendments.” Discussion opened by: Dr. W. M. Bartlett, Dr. J. H. Kennerly.

June 3d.—Dr. H. Prinz.—“The Newer Local Anesthetics.” Discussion opened by: Dr. DeCoursey Lindsley, Dr. C. C. Cowdery. Dr. O. J. Fruth.—“The Combination of Porcelain and Metals in Crown and Bridge-work.”—Discussion opened by: Dr. D. O. M. LeCron, Dr. W. F. Lawrenz.

July 1st.—Dr. C. D. Lukens.—“Methods of Opening the Antrum.” Discussion opened by: Dr. Wm. Conrad, Dr. M. R. Windhorst. Dr. J. F. Austin.—“Carbolic Acid.” Discussion opened by: Dr. W. G. Cox, Dr. Richard Summa.

October 7th.—W. H. Warren, A. M., Ph. D., Professor of Chemistry, Washington University.—Subject to be announced. Discussion opened by: Dr. W. F. A. Schultz, Dr. H. Prinz. Dr. A. H. Fuller.—“Care of the Teeth.” Discussion opened by: Dr. A. J. Prosser, Dr. J. B. Newby.

November 4th.—Dr. DeCoursey Lindsley.—“Suggestive Therapeutics as Applied to Dentistry.” Discussion opened by: Dr. Wm. Conrad, Dr. Joseph G. Pfaff. Dr. D. O. M. LeCron.—“Continuous Gum vs. Gold and Rubber Plates.” Discussion opened by: Dr. P. H. Morrison, Dr. H. M. Hill.

December 2d.—Election of Officers.

Alumni Association of New York College of Dentistry.

At the annual meeting of the Alumni Association of the New York College of Dentistry, held on January 15, 1902, at the Hotel Majestic, the following were elected to serve during the ensuing year:

President, Dr. John I. Hart, New York City; First Vice-President, Dr. Edward Fox, New York City; Second Vice-President, Dr. H. R. Armstrong, New York City; Secretary, Dr. J. Ostram Taylor, New York City; Treasurer, Dr. F. A. Chicherio, New York City; Curator, Dr. F. J. McLaren, New York City. Executive Committee—Chairman, Dr. W. C. Deane, New York City; Dr. Finn Fossum, New York City; Dr. B. C. Nash, New York City. J. OSTRAM TAYLOR, Sec'y.

Dental Society Organized in Lowell, Mass.

The Lowell Dental Society was organized January 29th, 1902; object, good fellowship and professional advancement; meetings, bi-monthly, except during July and August.

The officers are: President, A. W. Burnham; First Vice-President, W. H. Downs; Second Vice-President, D. D. Snyder; Secretary, Edwin E. Kinney; Treasurer, Edwin L. Farrington; Librarian, J. V. Pepin.

The first dinner was held at the Merrimac House on February 12th. Papers were read by Drs. E. L. Farrington and W. H. Downs.

The members are enthusiastic and the Society has started out under very favorable conditions.

Institute of Dental Pedagogics.

At the close of the ninth annual meeting of the Institute of Dental Pedagogics, held at Pittsburg, Pa., December 31, 1901, and January 1 and 2, 1902, the following officers were elected for the ensuing year:

President, Hart J. Goslee, Chicago, Ill.; Vice-President, J. D. Patterson, Kansas City, Mo.

Executive Board, W. Earl Willmott, Toronto, Can.; W. H. Whitslar, Cleveland, Ohio; D. R. Stubblefield, Nashville, Tenn.

Master of Exhibits, D. M. Cattell, Chicago, Ill.

Secretary and Treasurer, H. B. Tileston, Louisville, Ky.

D. R. Stubblefield was elected on the Executive Board for the term of three years, to succeed D. M. Cattell, whose term expired.

It was decided to hold the next meeting in Chicago during the holidays.

H. B. TILESTON, Sec'y and Treas.

314 Equitable Bldg., Louisville, Ky.

Harvard Odontological Society.

At the regular monthly meeting of the Harvard Odontological Society, held January 30th, 1902, the following officers were elected for the ensuing year: President, Julius G. W. Werner, Boston; Recording Secretary, John W. Estabrooks, Boston; Corresponding Secretary, Arthur H. Stoddard, Boston; Treasurer, Allen S. Burnham, Gloucester; Editor, Harry W. Haley, Boston.

Executive Committee: Recording Secretary, Ex-Officio Chairman, J. W. Estabrooks, William P. Cooke, Lyman F. Bigelow.

ROBERT T. MOFFATT, Rec. Sec'y.

85 Newbury St., Boston, Mass.